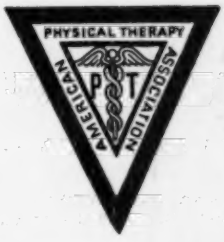
THE

physical therapy

REVIEW

Volume 34 - Number 7 July 1954



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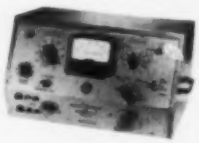

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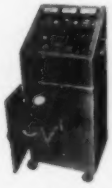

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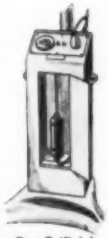

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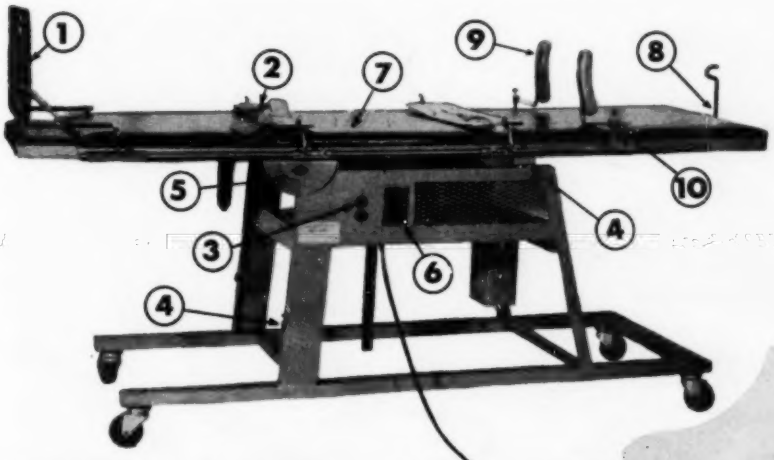

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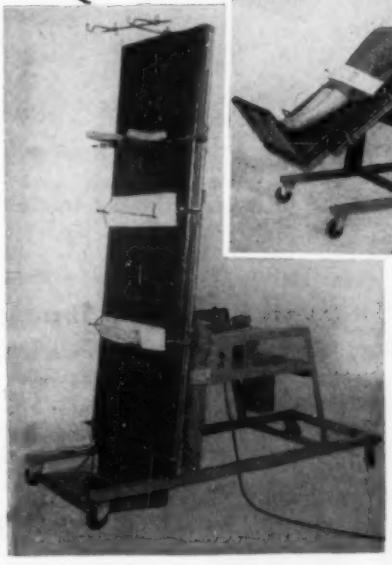

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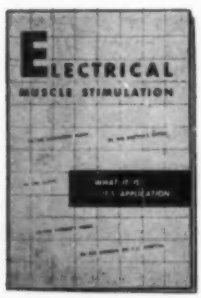

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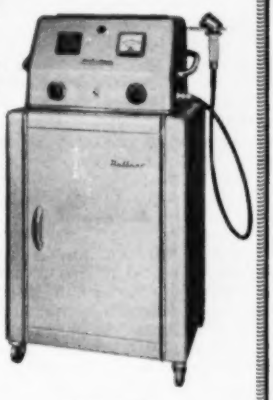

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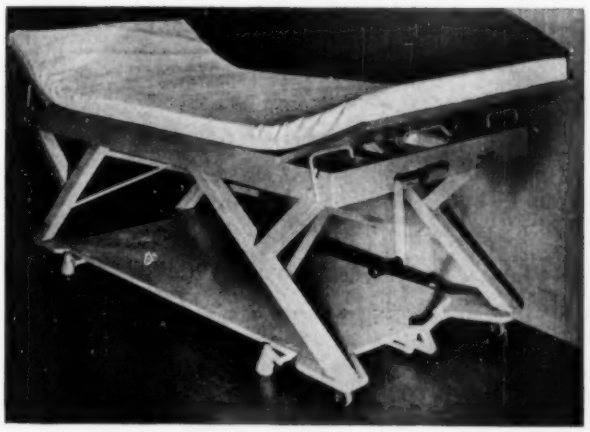

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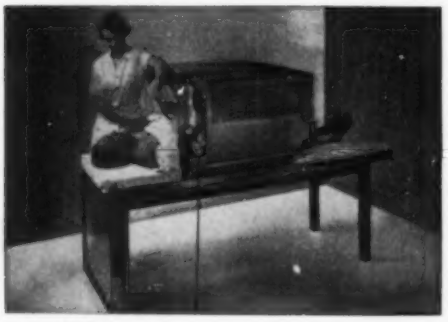

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An Adapted Progressive Resistance Exercise Device

Royce P. Noland, B.A., and F. Albert Kuckhoff, B.S.

In recent years, progressive resistance exercise has attained the role of a significant and intricate segment of physical therapy treatment. It has gained much impetus through the research of Dr. Thomas L. DeLorme and his associates. The experimental device presented here was developed for the express purpose of making progressive resistance exercises for hamstrings and quadriceps femoris muscle groups more convenient and efficient. In our experimentation it also has proven valuable in making possible variations of conventional progressive resistance exercise and other exercise procedures for the thigh muscles. This presentation will deal exclusively with the mechanics involved. The physiological basis will not be discussed.

Description

The most significant part of this device is the adjustable lever arm that holds the weights. This has been designated the *resistance bar*. The U-shaped bar attached to the *resistance bar* at the axis by a shaft is called the *exercise bar*. Thus a double lever mechanism is created to transpose the resistance pattern of the *resistance bar* to the *exercise bar* and, in turn, to the leg. A ratchet mechanism is incorporated in the *resistance bar* at the axis to make it possible to alter the relationship of the two bars. The most important physical principle of this mechanism is that its maximum resistance potential is reached when the *resistance bar* is horizontal. If the position of the *resistance bar* is altered from this point, either upward or downward, the effective resistance exerted by the weight on the lever is reduced. Graphically, it would appear as a sine curve reducing equally both ways from the optimum point until it reached "0" on the graph which would be the vertical position for the lever. (See figure II) Since the relationship of the two levers can be altered, maximum resistance or assistance can be given at any point through the range of motion. With such a diversity, any of a series of resistance patterns can be created and also gives the physical therapist greater variability in positioning the patients for exercise.

Inasmuch as the device is attached to the plinth and is not fastened to the patient in any way, preparing the patient and completing the exercise procedure is greatly facilitated. The foot rest is padded for the patient's comfort. Disc weights are attached over a single rod which is at a right angle to the *resistance bar*. Due to the constant horizontal position of this rod, a cuff is not necessary to keep the weights in place.

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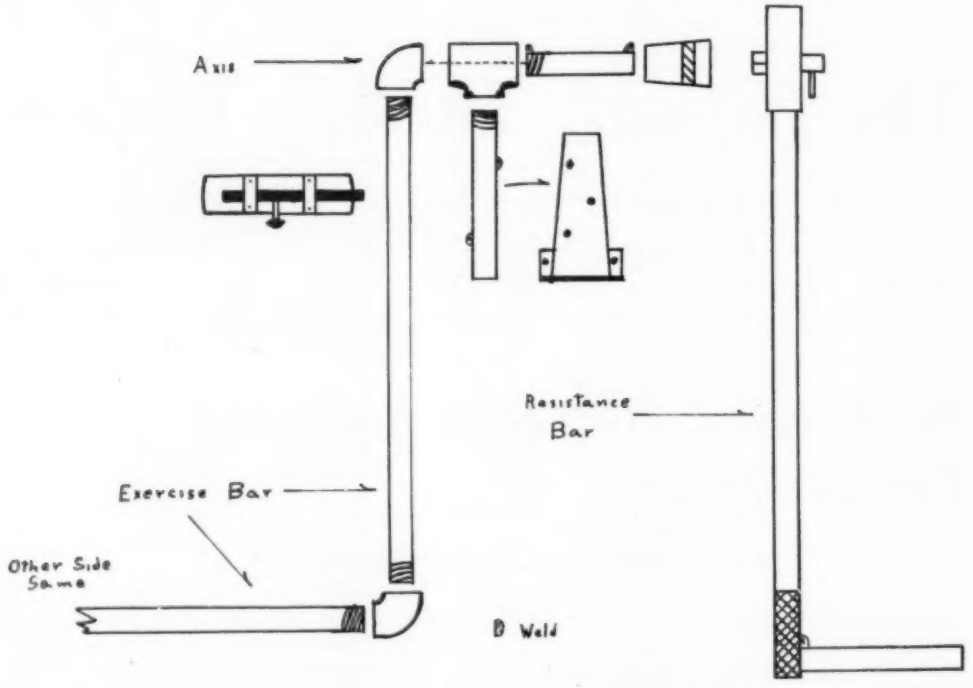

Figure 1: An exploded view of the exercise device.

Sockets, made to fit the lug on the ratchet mechanism, are welded to both ends so the *resistance bar* can be attached on either side of the device at the convenience of the physical therapist, depending on the particular positioning problem of the patient.

The particular model described here is constructed so it can be stored under the plinth. The purpose of this is to clear the table top so that it will be free for other treatment purposes. In a clinic where a particular table could be reserved exclusively for leg resistance exercises, a hinging mechanism would not be necessary and would thus simplify the construction somewhat.

The construction of the device is relatively simple. Any plumbing or machine shop that has welding facilities can build it without difficulty and at relatively low expense. Figure 1 gives the necessary plans. Local adaptations can be made as the situation demands. The two measurements which have been found to be important are the distance from the axis to the footrest and from the axis to the plinth top. These should be 11 inches and 2½ inches respectively. The former figure should be much less (6 or 7 inches) if it is to be used for children exclusively. Other measurements will depend on the size of the plinth to which the device is to be attached. A materials list for this model of the device follows:

½" water pipe or electricians' conduit
½" pipe fittings as indicated
2 — 6" "T" hinges
1 — "Bonney" Ratchet Wrench (Catalogue No. 4285)
2 —"Bonney" ⅞" Ratchet Wrench Sockets (Catalogue No. HD 28)
½" felt or sponge rubber for padding of foot rest
2 —4" or larger Barrel Bolts
2 —¾" to ½" reducing tees

Function

The main function of this device is to provide the physical therapist with a more efficient and convenient device for administering progressive resistance exercise to the quadriceps femoris and hamstrings muscle groups. In addition, it makes it possible to (1) vary the resistance patterns,

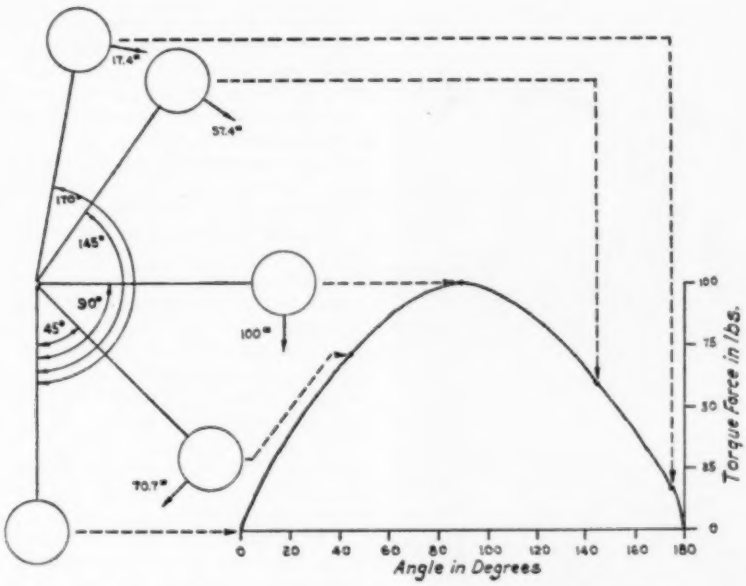

Figure II: A diagram of a hypothetical *resistance bar* at various positions correlated with a graph plotting the torque force or effective resistance.

(2) exercise both muscle groups either in the face-lying or sitting position and (3) exercise both muscle groups through their full range of motion.

The most effective technic for using the device is to place the patient in the desired exercise position before the device is put in place. For quadriceps femoris exercises in the sitting position, the distal part of the thigh is elevated so the femur rests in a horizontal position. The axis of the knee joint and the axis of the device should be aligned as accurately as possible.

Both legs should be placed between the *exercise bar;* however, in the sitting position one leg can rest over one side of the plinth. This latter position is particularly effective when exercising the non-involved leg of a lower extremity fracture case with a cast or for hamstring exercise in the sitting position. Caution should be taken to keep the trunk, hip, and thigh of the side being exercised in correct alignment. After the patient is properly positioned, the ratchet mechanism is attached to the more convenient side and appropriate disc weights are attached.

There are four basic exercise positions that can be used with this device. Each of these has several advantages depending on the patient's comfort, his condition and the resistance pattern desired. They are:

1. Face Lying (for hamstrings) Foot rest above calcaneus

   Resistance Bar Positions:

   1. Adjacent to leg (See figure III, view a)
   2. 45° below leg

2. Face Lying (for quadriceps femoris) Foot rest at distal tibial crest

   Resistance Bar Positions:

   1. 180° below leg with leg in vertical position
   2. 90° below leg with leg fully flexed

3. Sitting (for hamstrings) Foot rest above calcaneus

   Resistance Bar Positions:

   1. 180° to leg with leg at horizontal
   2. 160° below leg (See figure III, view b)

4. Sitting (for quadriceps femoris) Foot rest at distal tibial crest

   Resistance Bar Positions:

   1. Adjacent to leg (See figure III, view c)
   2. 60° above leg (See figure IV, view a)

Figure III: Arrows indicate direction of *resistance bar* motion.

View A—Hamstring exercise in the face-lying position with the *resistance bar* adjacent to the leg.

View B—Hamstring exercise in the sitting position with the *resistance bar* 160° below the leg.

View C—Quadriceps Femoris exercise in the sitting position with the *resistance bar* adjacent to the leg.

In each of the four basic positions a resistance pattern similar to that which would be attained with the boot is easily obtainable. These positions are listed above as the first alternative. The second alternatives listed under the sitting positions are the positions with an angle between the leg and the *resistance bar* that would create resistance curves most closely paralleling the joint torque curves as described by H. H. Clarke, et al.

Dr. Clarke has made isometric joint torque tests of several normal subjects at various points through the range of motion to determine the optimum point of strength potential and to establish a series of "strength curves" including those for extensors and flexors of the knee joint. These points of greatest muscle force were found to be at approximately 115 to 120 degrees for extensors and 160 degrees for flexors. At the angles indicated under the second alternate in the sitting position, the relation of these strength curves and the resistance curves created by the device were most nearly alike.

The second alternate listed under the face-lying positions will give resistance through the full range of motion. In each of the four basic positions two alternate resistance patterns have been presented to illustrate variations in giving resistive exercise. Innumerable other resistance patterns can be attained by a simple adjustment of the ratchet mechanism.

In addition to the convenience and adaptability of the device, there are some other considerations that deserve mention. By strapping the patient's leg to the *exercise bar*, it would be possible to exercise the quadriceps femoris and hamstrings groups even though the hip rotators were weak or paralyzed. Also by strapping the leg in a rotated position, emphasis on exercise of inner or outer hamstring muscles is feasible. Since the leg rest contacts the patient above the ankle joint, exercise of the thigh muscle groups is practicable even though the ankle joint or foot may be involved.

Another technic that has proven very successful with this apparatus is quadriceps femoris and hamstring exercises for below-knee amputees. This is accomplished by attaching a strap between the two uprights of the *exercise bar*. A pad is placed just distal to the tibial tuberosity. The strap is then placed over the pad (See figure IV, view c). As the stump moves, the device will operate as it does for a normal extremity with the same positions and resistance patterns possible. This technic has two important advantages over other devices for progressive resistance exercise to amputations: (1) nothing has to be

attached to the patient; and (2), since the strap absorbs the discrepancy between the motion of the device and the motion of the leg, friction on the stump is minimized. This same technic can be used for children if their legs are too short to reach the regular foot rest.

The device can also be used as a graded assistive exercise apparatus by having the *resistance bar* describe a downward arc while the leg is moving through its normal motion. (See figure IV, view b) It has proven very effective in selected cases. If the antagonist muscle group is unable to carry the required assistive weight, the physical therapist can manually return the device to the starting position for each repetition. Inasmuch as any grade of assistance can be attained at any point through the range of motion at which the need appears greatest, it should be particularly effective for graded assistive exercise.

For this technic the foot rest is placed at a contact point opposite to that used in resistive exercise, i.e., for assistive quadriceps femoris exercise the foot rest would contact the leg on its posterior aspect. Graded assistive exercise can be given in only two positions. For hamstrings the face-lying position is used while for quadriceps femoris the sitting position should be used.

It is not the purpose of this paper to corroborate the validity of the joint torque curves found in the literature or to substantiate the concept that resistance patterns should correlate with these curves. These factors are mentioned primarily to point out the flexibility of the device. However, the clinical application of this technic, using many patients with a wide variety of conditions, indicates that this concept is worthy of further consideration and research. It is also felt that the device would be of considerable value as an aid to research in the field of progressive resistance exercise. In the clinical application of progressive resistance exercise this experimental device has proven itself highly effective. Its adaptability makes it possible to carry out exercise procedures that previously were felt to be impractical or even impossible. As a time and work saver it is excellent. Further research is under way to expand its use to other joint motions. It is the hope of the authors that by presenting it to the field other physical therapists will wish to experiment with it and find other new uses for it.

SUMMARY

An exercise device for quadriceps femoris and hamstrings muscle groups has been presented

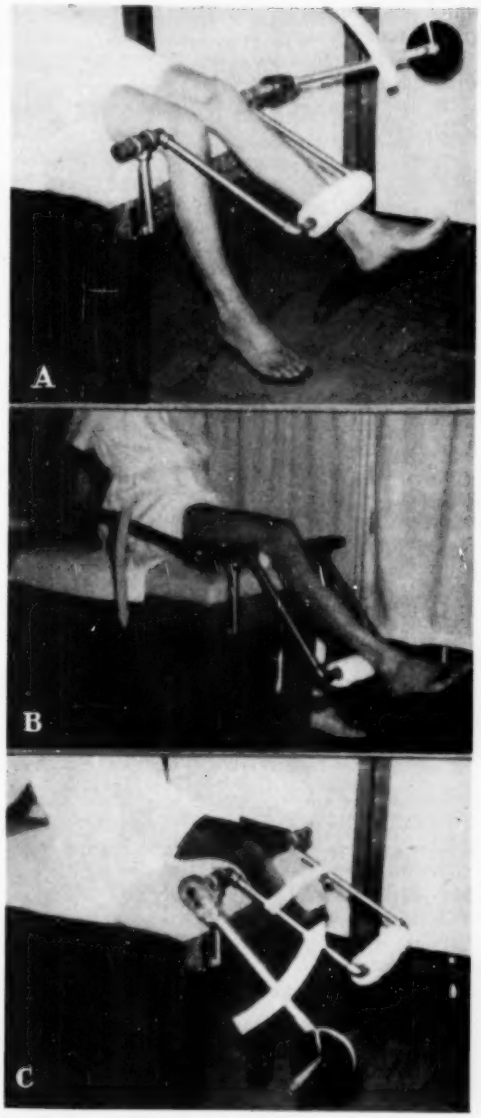

Figure IV: Arrows indicate direction of *resistance bar* motion.

View A—Quadriceps Femoris exercise in the sitting position with the *resistance bar* 60° above the leg.

View B—Assistive Quadriceps Femoris exercise in the sitting position.

View C—Quadriceps Femoris exercise in the sitting position for below-knee amputations with the *resistance bar* adjacent to the leg.

which has proven very effective for resistive or graded assistive exercise.

Possibilities for variation of resistance patterns have been suggested.

Its use for below-knee amputations has been pointed out.

Credits

The authors wish to express their gratitude to Miss Marian Williams and the staff of the Division of Physical Therapy, Stanford University, for their technical assistance; and to Miss Martha D. Collins, Chief, Physical Therapy Section, United States Public Health Service Hospital, New Orleans, for her cooperation and suggestions in the development of this device.

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Effective Care of the Hemiplegic

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INTRODUCTION

Spectacular advances have been made during the past decade in the preventive and therapeutic aspects of medicine. As medical science continues to move forward in the prevention and cure of diseases, chronic disabilities will continue to increase in our aging population. Thus physicians will be faced with the full responsibility of caring for an ever increasing number of patients with chronic disease processes common to older patients.

Cerebral vascular accidents with their resultant motor disability are the largest single entity that the medical practitioner will see in his daily practice. Hemiplegia is the most common and perplexing neuromuscular disability that follows an injury or disease of the central nervous system. It is well known that a cerebral vascular accident such as that due to a hemorrhage, thrombus or embolism is by far the principle offender, nevertheless hemiplegia may also be caused by such pathological conditions as multiple sclerosis, brain tumor, brain abscess, encephalitis, cerebral palsy, poliomyelitis and other diseases of the central nervous system.

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TREATMENT

The conscientious, intelligent care of the patient with hemiplegia is one of the most vital responsibilities of the medical practitioner today. With a dynamic approach towards the resultant neuromuscular disability that may follow a stroke, the attending physician can make this one of the most gratifying phases of his medical practice and help to solve the problems of dependency and invalidism so common among patients who have had a cerebral vascular accident.

From a practical standpoint, the care of the hemiplegic patient falls into three distinct phases. The first is concerned primarily with those therapeutic measures that attempt to save the patient's life during the immediate onset of the stroke. The second phase consists of those medical and

physical measures directed towards the residual hemiplegia to minimize pain and spasm, prevent contractures or deformities, and improve neuromuscular function and coordination. The final phase deals with the use of physical agents and rehabilitation technics that aim to rehabilitate the patient to a life of usefulness and self independence.

Phase One:

Intelligent medical and nursing care are essential to avert death during the acute stage of the disease and take precedence over all other routine measures. Adequate fluid balance must be maintained parenterally if the patient is unconscious. The bladder should be emptied by catheterization if necessary and enemas are advised to keep the bowels open. Gilbert and De Takats have found stellate ganglion blocks to be very effective in improving the cerebral circulation; however, Sheinberg using the Kety and Schmidt technic for measuring cerebral blood flow showed that unilateral stellate ganglion blocks failed to produce any changes in cerebral hemodynamics. Neurosurgical intervention is often indicated during this acute phase in those cases where hemorrhage produces gradually increasing intracranial pressure that results in progressive stupor. Oxygen therapy is indicated if there is evidence of respiratory embarrassment or cyanosis and because oxygen is of value as a vasodilator on the cerebral vessels. Tube feeding must be prescribed if the patient remains unconscious more than 48 hours.

Immediately following the return of consciousness or when the attending physician believes the patient has survived the critical shock of the cerebral vascular accident, certain simple but effective measures must be instituted to prevent hypostatic pneumonia, decubiti, relieve muscular pain and spasm, prevent musculoskeletal contractures or deformities, and to maintain a normal range of motion in the involved extremities. If the following measures are stated early there should be no complicating decubiti, contractures, or deformities to hinder a full rehabilitation program later in the course of the disease:

1. Frequent turning in bed and passive movements of the trunk and extremities will aid in preventing hypostatic pneumonia and sensitive pressure areas on the back, hips and heels.

2. A footboard or footbox serves to keep the involved foot in a neutral position and thus prevents a tight heel cord and/or footdrop. The pressure of the foot against the upright board also provides a means of preserving certain postural and proprioceptive reflexes.

3. A posterior bivalved plaster cast or a splint with a cross bar at the foot end will aid in preventing external rotation of the hip and tibial torsion. Sandbags, placed along the lateral aspect of the involved lower extremity will perform the same function if splints or casts are not available.

4. A small pillow should be placed in the axilla of the affected side to maintain the shoulder in about 45 degrees of abduction and 15 degrees of external rotation. This procedure is very effective in preventing the frequently observed painful, adducted, frozen shoulder.

5. A cock-up splint should be used to maintain the wrist, hand, and fingers in a position of function.

6. The use of heat, massage and gentle passive motion to the paretic extremities should be prescribed several times daily to relieve muscular pain and spasm and to prevent postural contractures. Quadriceps and gluteal setting exercises should be performed frequently to minimize atrophy of disuse and to maintain some muscular tone in these very important muscles.

Phase Two:

This phase of the treatment comprises a program of physical measures directed towards the residual hemiplegia in an endeavor to improve neuromuscular function, coordination and strength. It is during this phase of the treatment that a full objective measurement of the extent of the disability should be made. A careful physical examination is done on all patients, to exclude those cases with advanced senility, encephalomalacia, malignant hypertension, and other serious pathological processes that may prohibit their participation in many of the physical activities that are essential in a total rehabilitation program. Determinations of muscle strength, range of joint motion and functional testing of the activities of daily living factors, should be done as a basis for the over-all physical therapeutic and rehabilitation program. Based on these findings, a program of physical treatment can be carried out as follows:

1. *Physical Therapy* — in the form of heat, massage, electrotherapy and therapeutic exercises. Heat, either infra-red, luminous or moist, should be used in the presence of continued pain, spasticity or edema. Heat therapy should be followed by massage especially when edema is pres-

Figure 1. Bed activities utilizing an overhead trapeze. Sound hand supports paretic hand.

ent. Low frequency currents, such as the interrupted galvanic, or sinusoidal may serve to maintain muscle tone and weight. If a contraction can be obtained with such currents, it can be an additional factor in the program of muscle reeducation as well as having some psychological value, for when the patient is able to see motion in the paralized extremity, he is encouraged and motivated. Passive and reeducation exercises are of prime importance in attempting to overcome mild deformities resulting from the unapposed action of spastic muscle groups, and reestablishing movement in the paretic or paralyzed muscles. As function returns to the involved extremities, passive or reeducation exercises are replaced by active assistive or active exercise in accordance with the findings of the muscle evaluation test.

2. *Bed Activities:* Rusk has stated that certain physical activities can be started at the bedside within 24 hours following a stroke due to a thrombus or embolus but that such physical activities should be postponed or restricted for two to three weeks when a hemmorhage was the etiological factor. The following mechanical aids and measures will do much to hasten the patient's recovery and prepare him for the more vigorous activities prescribed in the third phase of the rehabilitation program:

An overhead trapeze will do much to lessen the nursing care of these patients and afford a means of exercising the arms and trunk muscles (Figure 1). A piece of rope with a wooden cross piece at the head end of the rope, if fastened to the foot end of the bed, will permit the patient to come to a sitting position as well as recondition the flexors of the trunk. Teaching the patient to roll from one side of the bed to the other will do much to prevent decubiti and also will prepare the patient for such pre-ambulatory activities as dangling his feet over the edge of the bed, sitting up, and getting to the edge of the bed. As the patient regains his strength and self confidence, he can be taught to get in and out of the bed, and by holding on to the bedstead, a chair or an orthopedic walker, he also can be taught to assume and maintain the standing position. It will be found that if the patient can maintain an erect position with the affected foot firmly planted on the floor, he will be able to flex and extend the leg as in walking and be able to bear his body weight (Figure 2). Weight bearing and foot placement exercises can be given at this time with the aid of a walker or by placing two heavy duty chairs back to back with sufficient room between them for the patient to stand upright. By having the patient move the right foot forward as he advances the chair on his left or the left foot forward and the right chair forward simultaneously, he can be instructed in ambulation activities and step placement exercises to reestablish patterns of reciprocal motion.

3. *Occupational Therapy* — This invaluable form of therapy, utilizing the arts and crafts provides functional and diversional activities designed to improve muscle strength, coordination and self confidence. Kinetic activities aid in the process of relearning and should be selected on the basis of the activities of daily living test. Although teaching the patient to care for his essential daily needs must be the main objective of the occupational therapy program, certain diversional activities also must be provided to aid in relieving the tensions and anxieties that beset the hemiplegic patient during his illness.

4. *Speech Therapy* — The treatment of an aphasia should be started as soon as the patient has recovered consciousness. Retraining should be performed by a trained speech therapist when

possible, although a teacher who has had some experience in this field can be of invaluable help to the aphasic patient.

Phase Three:

The final phase of treatment consists of those activities that attempt to return the patient to society as a productive rather than a dependent citizen. Physical therapeutic measures are stressed that will improve functional performance, by retraining the patient in ambulation, reestablishing function and coordination of movements in the affected extremities, and improving speech performance.

1. *Appliances* — During this stage of the treatment program it may be necessary to prescribe a short leg or long leg brace to aid the patient during his ambulation training. A double bar short leg brace with a stirrup attachment, 90 degree stop and supinator "T" strap at the ankle, may be required to prevent plantar flexion and supination of the foot. A long leg brace with or without a pelvic band is often needed for those patients who exhibit severe weakness or paralysis of the quadriceps femoris, hamstrings and gluteal muscles. Approximately 50 per cent of hemiplegic patients require only a short leg type brace. Elevating the sole and heel of the shoe on the unaffected foot will aid in reestablishing a better walking pattern. The following program of treatment should be carried out in the physical medicine department or in the patient's home, if necessary.

2. *Therapeutic Exercises* — Since movement by exercise is the prime factor in a rehabilitation program, the prescription for the type of exercises to be given during this period must depend upon the degree of return of motor function. Passive exercises and/or electrotherapy must be continued if the patient cannot initiate voluntary motion; active assistive exercises if there is some evidence of weak active motion; active exercises if there is evidence that the involved extremities or trunk can be moved through their normal range of motion; and finally, active progressive resistive exercises to produce hypertrophy of muscle tissue and increased strength. These exercises can be given in the therapeutic gymnasium by a trained physical therapist or in the home by a member of the family who has been given some instructions. Various mechanical exercises can be of invaluable aid in giving the various types of exercises prescribed. A simple overhead pulley with a length of clothesline or rope will afford passive or active assistive

Figure 2. Standing activities at the bedside with the aid of an orthopedic walker.

exercises to the involved upper extremity. A stationary bicycle or a progressive resistive exercise table will provide the active and active resistive exercises necessary to increase muscle function and strength. Functional occupational therapy, as previously stated, is an excellent method of providing active or active resistive exercises as well as providing reciprocal motion and movement reeducation.

3. *Ambulation Training* — The hemiplegic patient should be moved to the rehabilitation department for continued training in balance and ambulation. Following the initial trial of standing at the bedside and attempts at ambulation, a more exacting and strenuous program of activities must be initiated to assure the patient that he will walk again. Practice in balance, standing and attempting those first few steps can best be done between the parallel bars (Figure 3). He must be taught to use a heel and toe gait to reduce any spasticity that may be present, and to practice reciprocal motion of the arms and legs. When the patient is self confident and has

Figure 3. Ambulation and reciprocal motion training with the aid of the parallel bars and long leg braces.

become proficient in walking between the parallel bars, he can be given a pair of crutches or a cane to continue with such walking activities as going up and down steps and curbs, inclined surfaces, in and out of an automobile, bus, or streetcar.

4. *The Home Program* — A simple and practical program of exercises and rehabilitation activities must be prescribed as soon as the patient can be sent home from the hospital. By proper orientation of the patient and members of his family to the type of exercises and equipment needed for proper home care we can do much to shorten the time spent in the hospital as well as provide the necessary therapy to those patients who cannot secure the services of trained therapists, or are unable to go to some established rehabilitation center for continued therapy and training.

CONCLUSION

A dynamic, positive approach to the treatment of the patient with hemiplegia can do much to eliminate the feeling of hopelessness and passive acceptance that is prevalent among medical practitioners. A comprehensive program has been presented that utilizes medical and rehabilitation procedures designed to meet the total needs of the patient. Through such a program many hemiplegic patients can be rehabilitated to a life of usefulness and self sufficiency.

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Suggestions from the Field

Adjustable Parallel Bars

Eleanor F. Wetmore

In the field of rehabilitation the parallel bars for walking practice have proved to be most helpful. Owing to the wide range of height, weight, and general build of handicapped people it has been necessary to construct such walking ramps with railings which are adjustable.

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The ramp which has been devised for the Physical Therapy Department at the Massachusetts Hospital School is quickly and easily converted from one height and width to another. It is 16 feet long and constructed of stainless steel. One hand rail is adjustable to three heights and its three telescopic uprights are bolted to the floor. Across from this, and fastened to the wall, are three hand rails at levels corresponding to each adjustment of the stationary rail. These wall rails are mounted on arms which swivel away from the wall allowing four choices in width at each level.

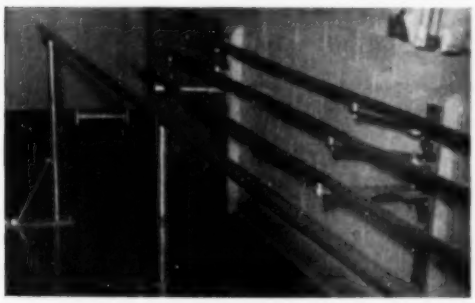


Figure 1. Adjustable Parallel Bars.

Because of its simple mechanical adjustments, structural stability, and adaptability to the individual patient, this piece of apparatus has contributed substantially to the general efficiency of this department.

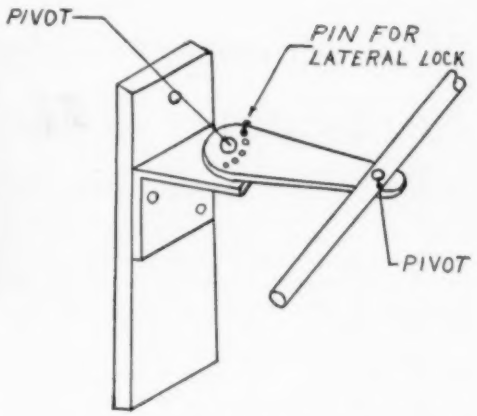


Figure 3. Detailed drawing of swivel arms.

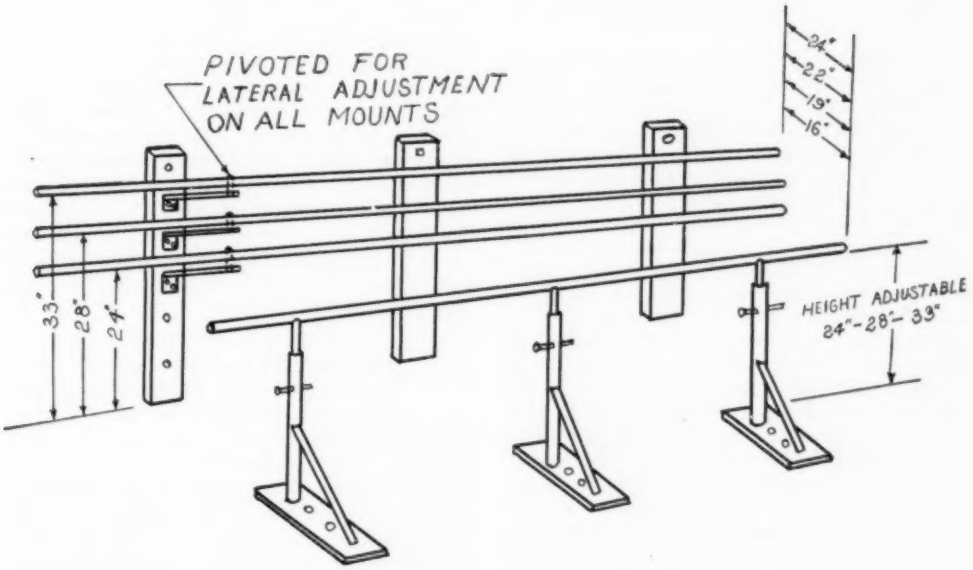


Figure 2. Description of Adjustable Parallel Bars.

Mass Movement Patterns in Neuromuscular Reeducation

Murray Chrystal, M.A., and Henry Rosner, M.D.

In the majority of physical therapy clinics, muscle reeducation as applied to any disease involving the final common pathway is aimed at the restoration of function in individual muscles or single elementary motions. The condition of the involved parts determines the type of reeducation therapy. The zero muscle or zero elementary motion is exercised passively to prevent possible deformity and to restore to the patient's mind an awareness of the function of the involved part so that active motion may be facilitated. The weakened muscle or motion is given active assistive exercises for possible improvement in power. These exercises may be performed for many months with little or no positive results and eventually bracing is prescribed to support the deficiency resulting from the paresis.

Research on the physiology and actions of the skeletal muscular system indicates that isolated movements of muscles do not occur. Gellhorn and his co-workers showed that electrical stimulation of the motor cortex does not produce isolated motion but instead induces mass movement patterns. Other investigators (Inman, et al.) working on this same problem have reached the same conclusion. Thus, Gellhorn and Johnson stimulated the focal point in the motor cortex of the monkey for the triceps and noted not only extension of the elbow, but also flexion of the wrist, fingers and retraction of the shoulder. Stimulation of the focal point for the biceps resulted in stimulation not only of the biceps but also extension of the wrist, fingers and protraction of the shoulder. In confirming these findings, Kabat and Knott have stated "the specific synergistic patterns of an entire limb as demonstrated in the forelimb of the monkey through electrical stimulation of the motor cortex are similar to the mass movement patterns which we have found useful as a powerful facilitation mechanism for the upper extremity in patients." Clinical experience and electromyographic readings indicate that strong extension of the wrist produces flexion of the elbow, the reaction being reversible. Again, strong flexion of the wrist will produce extension of the elbow; the reaction also being reversible. Cobb has stated that while spinal paralysis may produce a paralysis of a muscle, the motor cortex still can induce useful movement of the whole group of muscles of which the paralyzed muscle is a part. Thus, all voluntary motion is an activity of the central nervous system and as Beevor has stated; the motor cortex is not concerned with the action of individual muscles but of patterns of motion.

In light of the above findings, it would appear that the very basis for our method of muscle reeducation must be reevaluated and perhaps revised in order that a course of therapy be followed that would best benefit the paralysis that results from a lesion of the final common pathway. It becomes essential that the term muscle reeducation be changed to "neuromuscular reeducation" with the greatest emphasis upon the neurological implications of the reeducation pattern. The knowledge and correct application of the many mass movement patterns of the central nervous system would then be the basis for the institution of reeducation therapy for this type of paralysis.

Incorporated with the concept of mass movement patterns are the facilitative technics (resistance, stretching, reversal of antagonist, rhythmic stabilization) developed by Kabat and his associates. These technics have been described elsewhere but it is pertinent to note here that Kabat's concept of fatigue in relation to neuromuscular reeducation is at variance with the present held concept. The prevailing opinion is that all therapy be done up to the point of fatigue in order to avoid damage to the muscle tissue. Kabat has investigated the phenomenon of fatigue and has come to the conclusion that the fatigue resulting from reeducation therapy involves primarily the synapses of the central ner-

Department of Physical Medicine Rehabilitation, Jewish Sanitarium & Hospital for Chronic Diseases, Brooklyn, New York.
Henry Rosner, M.D., Medical Coordinator; Murray Chrystal, Administrative Coordinator and Chief Therapist.

vous system, the myoneural junction, and to a lesser degree, the muscle itself. He also found that a brief period of rest reversed the process of fatigue, and the part treated returned to its original responsiveness. This concept would therefore indicate that intensive therapy would be of greater value in the restoration of neuromuscular function than the present method.

In poliomyelitis, the tibialis anticus and the other dorsiflexors of the foot are frequently affected. Experience in many cases has shown that the accepted treatment for the restoration of motion in this group of muscles has failed. The treatment entails reeducation to the individual muscles which together produce dorsiflexion of the foot. In employing the various technics (passive, active assistive, active motion, etc.) to restore power to the individual muscles, the salient facts concerning the foot as a whole has apparently been ignored. The muscles responsible for dorsiflexion of the foot do not react individually but in a mass synchronous pattern in conjunction with the muscles of the knee and hip joints. Thus, it would appear that reeducation aimed at several groups of muscles to produce a mass movement pattern would be of greater value in restoring power to a paretic muscle within this group pattern rather than attempting to reeducate the individual paretic muscle to the exclusion of the related muscles.

The employment of a mass movement pattern such as hip flexion, adduction, knee flexion, and external rotation with resistance has often resulted in contraction of the dorsiflexors which have been paralyzed for a period of one or more years. Other mass movement patterns for the dorsiflexors have been observed and have become part and parcel of therapy aimed at restoration of this group of muscles. Heavy resistance to the external rotators of the hip will often result in the contraction of the tibialis anticus. Heavy resistance applied to the internal rotators will cause the contraction of the everters of the foot. Again, heavy resistance to the quadriceps will reveal contraction in both the extensors of the toes and the tibialis anticus. This phenomenon is reversible so that stretching combined with resistance of the dorsiflexors will produce contractions of the quadriceps. Stretching combined with resistance to the quadriceps of one extremity will often elicit a contraction in the tibialis anticus and the other dorsiflexors of the foot in the opposite extremity. This action is also reversible. Stretching and resistance to the dorsiflexors of one foot will elicit in many cases contractions in the opposite dorsiflexors.

CONCLUSIONS

1. Based on recent studies of the neurophysiology of the central nervous system, neuromuscular reeducation for lower motor neuron lesions should utilize mass movement patterns in combination with the facilitative technics developed by Kabat and associates.
2. A series of mass movement patterns for the restoration of power to the dorsiflexors of the foot has been presented.

REFERENCES

1. Gellhorn, E.: Validity of the Concept of Multiplicity of Representation in the Motor Cortex under Conditions of Threshhold Stimulation. Brain, 73-268, 1950.
2. Inman, V. T., Saunders, J. B. and Abbott, L. C.: Observation on the Function of the Shoulder Joint. Jr. Bone and Joint Surgery, 26:1-30, 1944.
3. Gellhorn, E. and Johnson, D. A.: Further Studies on the Role of Proprioception in Continually Induced Movement of the Foreleg in the Monkey. Brain, 73:513, 1950.
4. Kabat, H., Knott, M.: Proprioceptive Facilitation Technics for Treatment of Paralysis. Physical Therapy Review, 33:53, 1953.
5. Cobb, S.: Foundation of Neuropsychiatry. Williams and Wilkins Company, Baltimore.

Our Book Reviewers for July

Margaret Bryce, Instructor in Physical Medicine, Course in Physical Therapy, Medical School, University of Wisconsin, Madison.

Nila Kirkpatrick Covalt, M.D., former Chief of Physical Medicine and Rehabilitation, Connecticut Veterans Home and Hospital, Rocky Hill; now of Lake Park, Florida.

Joan P. Ebert, former Research Associate on the A.P.I. Research Project 44 at the National Bureau of Standards, Washington, D. C.

Suggestions from the Field

Bent-Elbow Crutch

Eugene E. Bleck, M.D., and
Lucy J. Straw, B.S.

The purpose of this paper is to present the design of a special crutch which has been successfully used with patients who have fixed flexion deformities of the elbows.

The first patient was a boy, age eight years, who had ankylosis of multiple joints due to juvenile rheumatoid arthritis. Both elbows were flexed at 90 degrees; 90 degrees flexion deformities of both knees were present, and these were successfully wedged out into extension, and long leg braces applied. Since the patient had fixed flexion deformities of both elbows, no type of crutch commonly used was successful, and canes would not provide the necessary stability. Accordingly, the type of crutch here presented was designed and was successfully used.

The second patient was a boy, aged fifteen years, who had multiple deformities due to osteogenesis imperfecta. Osteotomy and intramedullary nailing of both femora and tibiae had been accomplished. The patient was then allowed to walk in parallel bars with long leg walking casts. Because he had fixed flexion deformities of both elbows, the usual type of crutch was not satisfactory and could not be used. Canes were definitely too unstable. A crutch similar to the one designed for the first patient was used successfully in this case also. (Figure 1)

From the North Carolina Orthopedic Hospital, Gastonia, N. C.

Eugene E. Bleck, M.D., Fellow, National Foundation for Infantile Paralysis, Inc., Duke University School of Medicine, Durham, N. C.

Lucy J. Straw, Chief Physical Therapist, N. C. Orthopedic Hospital, Gastonia, N. C.

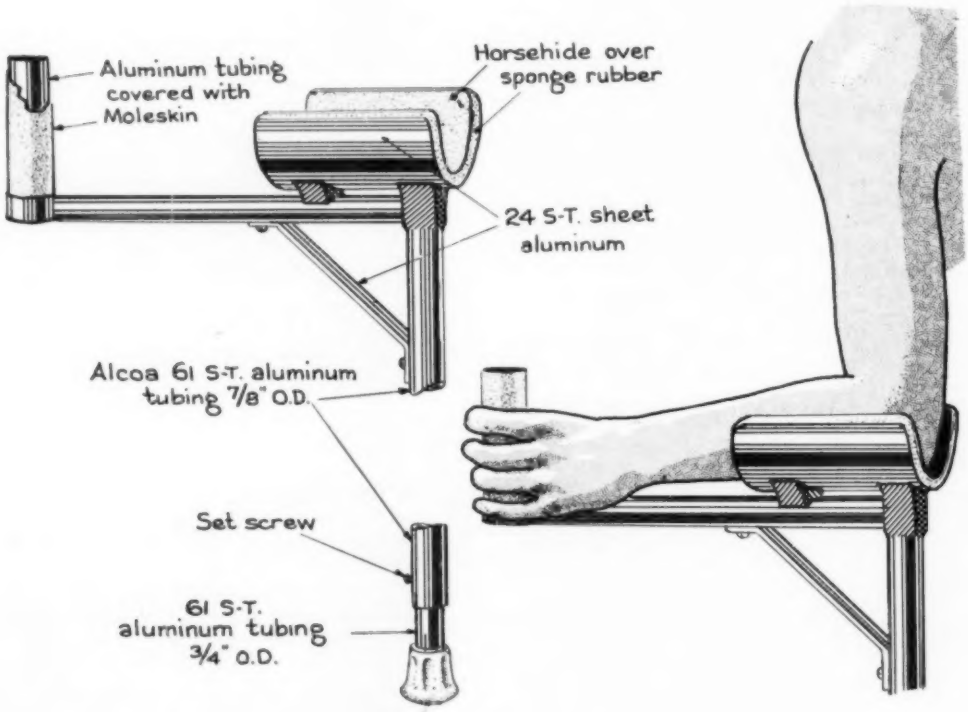

Aluminum tubing covered with Moleskin
Horsehide over sponge rubber
24 S-T. sheet aluminum
Alcoa 61 S-T. aluminum tubing 7/8" O.D.
Set screw
61 S-T. aluminum tubing 3/4" O.D.

Figure 1. Detailed drawing of the crutch together with the brace maker's specifications.

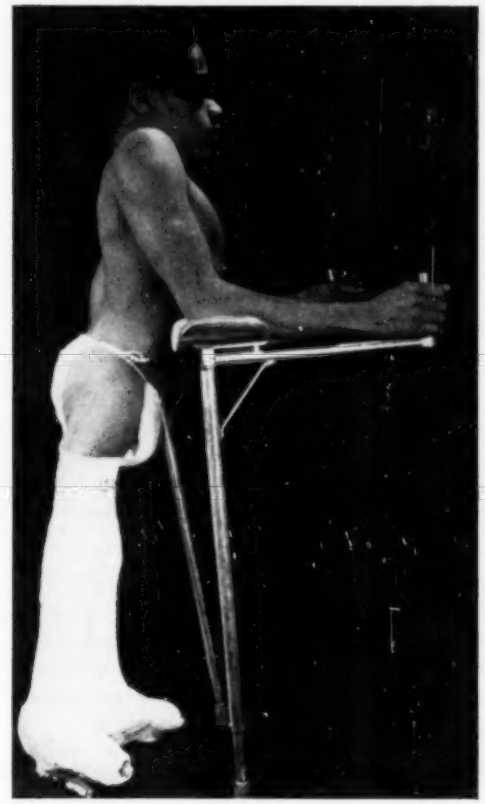


Figure 2. Photograph of the second patient in walking casts using the crutch.

The crutches were so designed that the weight was borne on the proximal third of the ulna in line with the humeral shaft when the elbow was flexed at 90 degrees. Stability was accomplished by adding to the crutch a handle bar which could be grasped firmly with the hand. Crutches were constructed of light tubular aluminum and were adjustable so that they could be lengthened as the patient grew. (Figure 2)

SUMMARY

A bent-elbow crutch has been described and has been successfully used for patients who have fixed flexion deformities of the elbow.

The crutches were made by the Carolina Brace Company, Charlotte, N. C.

Detailed drawing courtesy of the Veterans Administration Hospital, Durham, N. C.

Muscle Testing in Vaccine Study

Approximately 65 physical therapists will be participating in the states which are included in the vaccine study. The 35 physical therapists who will supplement a group prepared last year, attended a one week's orientation session at the D. T. Watson School in April. They will carry out the muscle testing programs for their respective areas in the follow-up and evaluation phase of the vaccine field trials, now in progress, sponsored by the National Foundation for Infantile Paralysis.

The orientation session consisted of lectures, demonstrations, and intensive practice periods conducted by Dr. Jessie Wright and her teaching staff. The physical therapists who attended the session are:

Virginia Thomas	Alabama
Geraldine Larson	Arkansas
Sarah Johnson	Connecticut
Eleanor Stout	Georgia
Mildred Allgire	Indiana
Ruth Denney	Indiana
Olive Farr	Iowa
Mary Tichenor	Kansas
Eleanor Hoffmann	Michigan
Beatrice Schulz	Missouri
Martha Nichols	Montana
Mary Bullock	New Hampshire
Bertha Andrews	New Jersey
Marion Kerr	New Jersey
Clara Weigele	New Jersey
Arthur Wilson	New Mexico
Shirley Edelstein	New York City
Marilyn Lingua	New York City
Miriam Selman	New York City
Isabelle Clifford	Erie County, New York
Grace LeRoy	Nassau County, New York
James Bayne	Suffolk County, New York
Mary McGuinn	New York State
Olive Wortman	North Carolina
Helen Nail	Tennessee
Marjorie Barré	Texas
Marion Boyer	Texas
Margaret Eppright	Texas
Nettie Jones	Texas
Emily Cate	South Carolina
Genevieve Mann	Vermont
Mary Blain	Virginia
Eloise Rhodes	Virginia
Nancy Sehmann	West Virginia
Esther Gillette	Wyoming

Editorials

One of the more interesting and stimulating aspects of the field of physical therapy is the constant appearance of new devices, equipment, methods of treatment, and research results all aimed at better care of the patient. This never ending expansion of facilities available for our daily work is a positive and gratifying expression of the value of this work as well as a realistic indication of the development and maturity of physical therapy as a profession.

While often it may seem difficult to keep up with these additions to our resources, every physical therapist recognizes the need for securing and using current ideas and devices. Information regarding new procedures is available from many sources such as professional journals, the public press, meetings, conferences, and personal contacts with other professional people. It is important not only to utilize the information which comes to us but to continue to seek out new material that will be useful in our particular field.

Failure to keep up with current trends obviously would limit both individual success and the desired growth of the field in general. Expansion of treatment procedures and the utilization of major developments in electronics, mechanics, physical and biological sciences and medical research as they apply to physical therapy is the only way we can insure its future. But unless there is recognition of the hazards which exist with such developments we may run the risk of limiting or cancelling their potential usefulness.

The most serious danger, against which we must be constantly on guard, is the tendency to adopt new knowledge or technics so completely that not only do we over-emphasize their value, but we further decrease our total abilities by excluding all previously useful and proven methods or devices from our treatment regimes. Here is where we must exercise careful, critical evalution and maintain a broad perspective if we are to realize the optimum benefit of our total knowledge. The success of a new treatment or an adaptation of an old principle to better use should be welcomed as one more facility to enable us to do our job better, faster, or more effectively. It does not mean, however, that we discard familiar technics and thus weaken our potential contribution to the patient's recovery.

If we are to realize the full benefit from programs of research, clinical studies, experimentation in all allied fields and individual inventiveness we must constantly strive to *integrate* such knowledge, and not substitute it for still useful procedures.

WORLD CONFEDERATION FOR PHYSICAL THERAPY *News*

Miss W. McAllister, member of the Chartered Society for Physiotherapy, Great Britain, and 1st Vice President of the World Confederation for Physical Therapy, died suddenly on April 15. Miss McAllister since 1948 has been identified with the organization of the World Confederation. She was a member of the Provisional Committee and was elected as 1st Vice President at the inaugural meeting in Copenhagen and re-elected at the meeting in London.

The many visitors from overseas in London will recall her enthusiasm and the many kindnesses which she showed to her guests. Her death is a great loss to the Confederation.

A Visit to St. Benedict's

Which two of the 25 hospitals listed in my program for the First Congress of the World Confederation for Physical Therapy should I visit? That was question No. 1 after my registration in Central Hall, Westminster, London, England, Sunday, September 6, 1953.

St. Benedict's Hospital, Church Lane, Tooting, S. W. 17, where chronic patients are treated, and one of the five Institutions comprising the Wandsworth Hospital Group, appealed to me. So, on Tuesday afternoon, September 8, I was one of 29 boarding a coach for that Institution.

We were given a most cordial welcome by the medical staff, and then arranged on the Institution's steps for a photograph, a copy of which was given to each of us the last day of the Congress. Programs were handed to us, and arrows indicated the way to go — all a part of the thought put into the planned-for visit. We were conducted by the medical staff from one group of patients to another, prepared for the demonstration of many items of equipment, including some newly designed. I am sure the hope of those in charge was to show the modern treatment of the chronic patient in a long-stay hospital. These groups of patients included (a) the young chronic patient; (b) the geriatric patient; (c) the neurological patient, and (d) the middle-aged rheumatic patient with preventable deformities. The demonstrations were organized by Miss D. Wyatt, M.C.S.P., Superintendent Physiotherapist, and Miss A. J. Savin, M.C.S.P., T.M.M.G., each demonstration being timed, thus making it possible for the program to be closely and smoothly followed.

A delightful tea was served at 4:15 p.m., followed by a demonstration by Mrs. B. O. Bobath, M.C.S.P., of treatment by reflex inhibition of three cases of cerebral palsy, now adult, and untreated since childhood. A coach was ready then to return us to our starting point, Central Hall, but this was not the end of the gracious hospitality extended to us.

Shortly after my return home, *The Unicorn*, the official journal of the Wandsworth Hospital Group, sent to me with the compliments of the Hospital Secretary, arrived at my Tennessee address. On the front page of this periodical was the picture of my group with an account of our visit, as well as one about those who attended September 9.

What does this mean to me now — after more than seven months have elapsed? To me it means that we, in America, have a great job ahead of us in planning for and executing the Second Congress, which must equal if not surpass the First, where we had the opportunity of learning, sharing, and of fellowship with those of like profession from many lands.

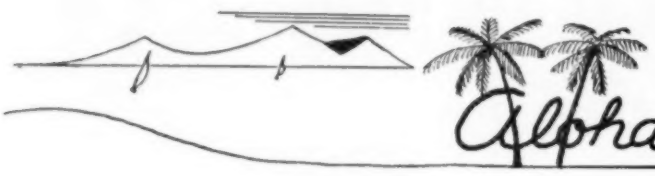
FLORENCE FELLEMENDE
Supervisor of Physical Therapy
Madison College, Tennessee

Congress Proceedings Available

The Proceedings of the 1st Congress are now available in the National Office. They contain all the papers given at the Congress together with summaries of the social events and study visits. Price, $2.50.

SEE YOU ON THE

BLUE PACIFIC SHORE IN '54



Aloha nui oe!

Los Angeles, California, June 27 - July 3, 1954
Hotel Statler
Business Meetings and Program Schedule

June 25th and 26th	Executive Committee Meetings
June 27th	
10:00 a.m. to 5:30 p.m.	**School Section**
5:00 p.m. to 8:00 p.m.	Hoolaulea (Make Merry) — Southern California Chapter, Host
June 28th	
9:00 a.m. to 12:00 noon	Registration — Clinic Visits
10:00 a.m. to 12:00 noon	Group Meetings
2:00 p.m. to 5:00 p.m.	Opening Session — President's address — Lt. Col. Harriet S. Lee. Address by Aura E. Severinghaus, Associate Dean, Columbia University, College of Physicians and Surgeons.
7:00 p.m. to 10:00 p.m.	Discussion of Bylaw Amendments
June 29th	
9:00 a.m. to 12:00 noon	House of Delegates
2:00 p.m. to 5:00 p.m.	**Neurophysiology of the Peripheral and Central Nervous Systems**
	Peripheral Motor Mechanisms — Anthonie van Harreveld, Professor of Physiology, California Institute of Technology
	Cerebral Association Mechanisms—Johannes M. Nielsen, M.D., Consultant for Aphasia in the Veterans Administration
	Central Motor Mechanism — Jann Brown, M.D., Assistant Professor of Pathology, School of Medicine, University of California at Los Angeles
5:00 p.m. to 8:00 p.m.	Election of Officers
June 30th	
9:00 a.m. to 12:00 noon	**Rehabilitation of the Brain Injured** — Staff of the Physical Medicine Service, Letterman Army Hospital, San Francisco
9:00 a.m. to 12:00 noon	**Sequelae of Cord Injuries** — Ernest Bors, M.D., Chief, Paraplegia Service, Veterans Administration Hospital, Long Beach, California and Staff Physical Therapists.
2:00 p.m. to 5:00 p.m.	House of Delegates
6:00 p.m. to 7:30 p.m.	Reception of National Officers
7:30 p.m.	Annual Banquet
July 1st	
9:00 a.m. to 12:00 noon	**Respiratory Problems** — Medical and Physical Therapy Staff, Respiratory Center, Rancho Los Amigos
9:00 a.m. to 12:00 noon	**Management of the Cerebral Palsied** — Maxwell M. Andler, M.D., Medical Director, Physically Handicapped Children's Program, County of Los Angeles; Margaret Rood, Elk's Foundation, Mobile Unit, Indio, California; Marcia Hays, M.D., Chief, Bureau of Crippled Children's Service, California.

2:00 p.m. to 5:00 p.m.	**Research and Clinical Studies Reports**
7:00 p.m. to 10:00 p.m.	Scientific Movies

July 2nd

9:00 a.m. to 10:30 a.m.	**Demonstration of a Case Conference** — Staff, Los Angeles Orthopedic Hospital
11:00 a.m. to 12:00 noon	**Demonstration of Home Instruction** — Lois Olmsted, Health Department, County of Orange, California
2:00 p.m. to 5:00 p.m.	House of Delegates — Clinic Visits

July 3rd

9:00 a.m. to 12:00 noon	Workshop on Chapter Organization

A recess will be scheduled each Morning and Afternoon to visit exhibits.

Our Conference Exhibitors

THE BIRTCHER CORPORATION
Los Angeles, California

On display will be the new Birtcher "Myosynchron" Muscle Stimulator; the widely used Birtcher Short Wave Machines; the Vibrabath Hydrotherapy Unit; and various other accessories which are so important in the field of Physical Medicine.

A. M. BROOKS COMPANY
Los Angeles, California

Electro-Medical and Physical Therapy Equipment. Raytheon Microtherm, (microwave) diathermy, Electro-cardiographs, Ballistodyne Ballistocardiograph, Electro-surgical units, Audiometers, AMBCO Hearing Amplifier, Ultraviolet and Infra-red lamps, and rehabilitation equipment will be exhibited.

THE BURDICK CORPORATION
Milton, Wisconsin

Latest developments in Physical Therapy Equipment.

S. H. CAMP & COMPANY
Jackson, Michigan

The Camp Plastic Braces, light weight and rigid as steel, can be molded by heating under infra-red lamp for precision fit.

CHATTANOOGA PHARMACAL COMPANY, INC.
Chattanooga, Tennessee

The Hydrocolator has revolutionized the application of moist heat. It eliminates the objectionable and time-consuming difficulties of conventional applications. Each application gives at least 30 minutes of continuous, effective moist heat.

THE COCA-COLA COMPANY
Los Angeles, California

Ice cold Coca-Cola served through the courtesy and cooperation of the Los Angeles Coca-Cola Bottling Company and the Coca-Cola Company.

DALLONS LABORATORIES, INC.
Los Angeles, California

The Dallons Laboratories, Inc. will display their latest models of the Medi-Sonar Ultrasonic generators. A complete crystallographic display will illustrate the piezo-electric effect. The Meditherm and Mediquartz lines of diathermy and ultraviolet generators also will be shown.

ELGIN EXERCISE APPLIANCE COMPANY
Elgin, Illinois

The Elgin Exercise Unit offers a facility in which both resistance and range of motion can be accurately measured and controlled. The Doorway Ensemble is designed to fulfill a need for a practical portable device.

J. H. EMERSON COMPANY
Cambridge, Massachusetts

Physical therapists concerned with the care of polio patients will be interested in the latest model of the Emerson Respirator with its new accessories. Also to be shown are the Emerson Rocking Bed, the Emerson Assistor, and the new Breathometer.

ENCYCLOPEDIA BRITANNICA, INC.
Los Angeles, California

EVEREST AND JENNINGS
Los Angeles, California

Featuring the "Convention Special" wheel chair. Free notebook and sharpened pencils for the daily meetings.

R. A. FISCHER & COMPANY
Glendale, California

New Fischer Ultra Sound, Model 2500; F.C.C. Approved Fischertherm diatherms models 1500 and 1200; Fischersine Low Volt model T-150 and Fischerwave model SWG-1.

FLEX-STRAW CORPORATION
Cleveland, Ohio

This straw with patented flexible angle is especially treated for use in both hot and cold liquids. Sanitary, disposable, it eliminates sterilization and breakage, saves valuable time. Lessens possibility of spread of communicable diseases. Resistant microcrystalline wax prevents disintegration in hot liquids.

FRESNO ORTHOPEDIC COMPANY
Fresno, California

New, low cost motorized, intermittent All-Purpose Traction allows more forceful traction with greater comfort. For use in both office and hospital.

ROLAND J. GAUPEL COMPANY
Los Angeles, California

Siemens, one of the largest electrical equipment manufacturers and laboratories in the world, presents over fifteen years of actual practice in Ultrasound. Dakon Hydrotherapy Equipment enjoying an international reputation also will be displayed.

HOWARD CABINET COMPANY
Los Angeles, California

The new Howard Moist Air Cabinet. No condensation of water on floor, 90 per cent humidity. Free booklets on "Therapeutic Value of Heat" and information on recommended uses for Cabinet.

ILLE ELECTRIC CORPORATION
Freeport, L. I., New York

Ille Electric Corporation will demonstarte how the care of infantile paralysis, arthritis, and other disabling conditions can be greatly improved by the use of Hydromassage Subaqua Therapy Tanks. Mobile Whirlpool Bath with Mobile Adjustable High Chair and Paraffin Bath also on display.

LABERNE MANUFACTURING COMPANY, INC.
Columbia, South Carolina

LaBerne (walk-off) standing treatment table. The table has adjustable crutches, adjustable cervical bar, adjustable footboard and adjustable restrainer straps.

LIEBEL-FLARSHEIM COMPANY
Beverly Hills, California

Model SW 660 Diathermy will be exhibited.

R. J. LINDQUIST COMPANY
Los Angeles, California

R. J. Lindquist Company will again feature their Chronosonic Ultrasound instruments as well as their shortwave and electrostimulators. Thermo-Electric paraffin bath also will be demonstrated.

McCALLS DESERT-AIR LAMPS
Los Angeles, California

Desert-Air Lamps to reduce the relative humidity and create mild, warm air in the sleeping zone of homes of patients suffering from symptoms of respiratory disorders such as head colds, bronchitis, hay fever and asthma.

PAUL J. MANDABACH, INC., DISTRIBUTORS
Chicago, Illinois

The new automatic Paust Electronic Stimulator Model 50 C., an Electrical Muscle Stimulator for adjunct therapy in strains, sprains, dislocations and other trauma of the musculoskeletal system, muscle atrophy, and re-establishment of muscle sense.

MEDCO PRODUCTS COMPANY
Tulsa, Oklahoma

The Medcolator Stimulator, a low volt generator for the stimulation of innervated muscle or muscle groups ancillary to treatment by massage. Electrical muscle stimulation is a valuable form of rehabilitation therapy.

THE MEDITRON COMPANY
Pasadena, California

The Meditron Company will exhibit electronic instruments including the well-known Golseth-Fizzel Constant Current Impulse Stimulator, the New Meditron Constant Current Chronaximeter, and the versatile Meditron Model PM Treatment Stimulator.

POOR & LOGAN MANUFACTURING COMPANY
North Hollywood, California

The Vaso-Pneumatic. The VP is successfully treating more different types of circulatory disorders of the extremities than any other form of treatment. Where the need for increased blood flow and/or movement of tissue fluids in the arms or legs is indicated, the VP is needed.

J. A. PRESTON CORPORATION
New York, New York

J. A. Preston Corporation is offering a complete line of Physical Therapy Equipment. Included are electromedical apparatus, exercise equipment, whirlpools, new type walkers, diagnostic apparatus, cerebral palsy equipment, and self-help devices.

RAYTHEON MANUFACTURING COMPANY
Waltham, Massachusetts

The Raytheon Manufacturing Company will feature the Raytheon "Microtherm" diathermy machine. Those who now use the "Microtherm" diathermy will be interested in the "D" director, Raytheon's easy way to treat larger areas.

THE RIES CORPORATION
Pittsburgh, Pennsylvania

The "Moistaire" unit delivers safe, comfortable and effective moist heat at the exact desired temperature. This physiologically safe procedure greatly increases local blood flow and can be applied either locally or generally.

C. M. SORENSEN COMPANY, INC.
Woodside, L. I., New York

The Schroeter Whirlpool Carriage, a portable Whirlpool unit for use in any bath tub. Listed by Underwriters' Laboratories, Inc., and accepted by the Council on Physical Medicine of the A.M.A. The Whirlpool Carriage is portable and versatile with full power efficiency.

WALK-A-LATOR MANUFACTURING COMPANY
Santa Rosa, California

The Walk-A-Lator—A new, proved and accepted product by physical therapists in many parts of the nation. A definite adjunct to rehabilitative ambulation.

ZIMMER MANUFACTURING COMPANY
Warsaw, Indiana

Zimmer Manufacturing Company will exhibit the Newman Myometer which has just been released for sale. Also shown will be the Haskell Cervical Traction, Gable-McKinney Walkers, Protractors, the Cooper Arthrometer and other items.

Scientific Exhibits

NATIONAL FOUNDATION FOR INFANTILE PARALYSIS
New York, New York

Rehabilitation in Poliomyelitis

PHYSICAL MEDICINE AND REHABILITATION SERVICE
Veterans Administration

Evaluating the Patient's Abilities

VETERANS ADMINISTRATION
Recruitment and Placement Service

To interview and interpret VA personnel policies

GONZALES WARM SPRINGS FOUNDATION
Gonzales, Texas

Assistive Devices for Rehabilitation of Upper Extremity Disabilities

THE KESSLER INSTITUTE FOR REHABILITATION
Pleasant Valley, West Orange, New Jersey

Congenital Amputee Program

RANCHO LOS AMIGOS RESPIRATORY CENTER FOR POLIOMYELITIS
Hondo, California

Glossopharyngeal Breathing

DEPARTMENT OF PHYSICAL MEDICINE AND REHABILITATION, UNIVERSITY OF ILLINOIS RESEARCH AND EDUCATIONAL HOSPITALS
Chicago, Illinois

Physiological Basis of Therapeutic Exercise

GEORGIA WARM SPRINGS FOUNDATION
Warm Springs, Georgia

Apparatus for Increasing the Functional Capacity of the Severely Involved Upper Extremities.

CALIFORNIA REHABILITATION CENTER
Vallejo, California

Patterns of Motion for Proprioceptive Neuromuscular Facilitation

STATE OF CALIFORNIA DEPARTMENT OF PUBLIC HEALTH, BUREAU OF CRIPPLED CHILDREN SERVICES
San Francisco, California

California Crippled Children Services for Handicapped Children

UNITED STATES AIR FORCE

Physical Therapy in the United States Air Force

UNITED STATES ARMY

U. S. Army Medical Service Physical Therapy Education Program

UNITED CEREBRAL PALSY ASSOCIATIONS, INC.
New York, New York

Programs of Treatment in Cerebral Palsy

Chapter Exhibits

ARIZONA CHAPTER

Progressive posture education and positive controlled rhythmical motor-driven devices in the form of tables.

NORTHERN CALIFORNIA CHAPTER

Corrective and assistive apparatus designed and constructed by physical therapists.

SOUTHERN CALIFORNIA CHAPTER

"Team Work"

COLORADO CHAPTER

Rehabilitation in a General Physical Therapy Clinic

CONNECTICUT CHAPTER

Physical Therapy Training—Then and Now

DISTRICT OF COLUMBIA CHAPTER

Join Ranks in a Proud Profession

ILLINOIS CHAPTER

Educational Project: Speech Therapy for Physical Therapists

NEW JERSEY CHAPTER

New and Adaptive Equipment

GREATER NEW YORK DISTRICT

Career Day in Manhattan

OKLAHOMA CHAPTER

From Dependence to Independence Through Medical and Vocational Rehabilitation.

TEXAS CHAPTER

Texas Style—Do It Yourself

VERMONT CHAPTER

Activities of Physical Therapists in Vermont

Association Activities

Grace Williams

Miss Williams, for many years Director of the Physical Therapy Department at Children's Hospital Society of Los Angeles, passed away on April 28. She will be remembered by the many students of the School of Physical Therapy at Children's Hospital to whom she was so kind and helpful during their training. She was a graduate nurse, with public health and other special training before going to Harvard for the physical therapy course. Miss Williams retired from physical therapy in 1947, but has continued her interest in the profession and has a large number of friends in the Southern California Chapter. She had been a member of the American Physical Therapy Association since 1929.

Dr. Arestad Leaves A.M.A.

Dr. F. Arestad, Associate Secretary of the Council on Medical Education and Hospitals of the American Medical Association has accepted the position of Area Medical Administrator, United Mine Workers of America, Welfare and Retirement Fund, with headquarters in Johnstown, Pennsylvania.

Dr. Arestad has long been a friend of Physical Therapy as the member of the Council who inspected physical therapy schools and consulted with the American Physical Therapy Association on physical therapy education.

The Association is deeply appreciative for all the advice and help given, and wishes him all success in his new position.

Appointment to National Office Staff

Miss Helen Hickey of Watertown, Massachusetts, has been appointed Educational Consultant to work with Miss Hewitt starting in August.

Miss Hickey earned her Bachelor of Science degree with a major in physical therapy at Boston University, Sargent College in 1950 and expects to complete requirements for the Master in Education degree with specialization in guidance within the next few months. Since qualifying as a physical therapist she has successfully carried out a variety of clinical and educational assignments. During the past two years she has been Instructor in Physical Therapy at Boston University, Sargent College. In addition to professional and alumnae affiliations, Miss Hickey is a member of the American Association of University Professors.

We are confident that Miss Hickey will make an outstanding contribution to the Professional Education Department of the American Physical Therapy Association.

Marriages

Phyllis B. Johnson of Nagutuck, Conn., now Mrs. Louis Quinn, Nagatuck, Conn.
Doris Kapler of Pittsburgh, Pa., now Mrs. Doris Koskos, Williston Park, N. Y.
Martha Hughes Moore of Richmond, Va., now Mrs. William J. Graham, Jr., Southern Pines, N. C.
Kate Painter of Akron, Ohio, now Mrs. Kate Miller, Akron, Ohio.
Alice Santistevan of Key West, Fla., now Mrs. Alice Slocum, Taos, New Mexico.
Rita M. Shipp of Kansas City, Mo., now Mrs. Rita Olson, Kansas City, Kans.
Elizabeth Soder of Newton Centre, Mass., now Mrs. Elizabeth Leonovicz, East Hartford, Conn.
Evelyn Studebaker of Sonome, Calif., now Mrs. Evelyn Wauchope, Sonome, Calif.
Melba Thomas of Chicago, Illinois, now Mrs. Melba Lewis, Chicago.
Mrs. Ida Walker of New York City, now Mrs. Ida Lawrence, Springfield Gardens, N. Y.
Georgia Wolf of South Euclid, Ohio, now Mrs. Georgia Bruce, Cleveland, Ohio.
Mrs. Charlotte Amberson of Amarillo, Tex., now Mrs. Thomas Owen, of Amarillo, Tex.
Catherine Rhoades of Dayton, Ohio, now Mrs. John Harter, Dayton, Ohio.
Margaret Barati of Pensacola, Florida, now Mrs. Earl Miller of Pensacola, Florida.
Margaret Hebert of Quincy, Mass., now Mrs. John Barberian of Quincy, Mass.
Alice Jasnosz of Brooklyn, N. Y., now Mrs. Alice Marglis of Freeport, N. Y.
Capt. Adeline Mills, of Stone Harbor, N. J., now Capt. Adeline Pearson, 7505th USAF Hosp., APO 232, P.M., N. Y.
Audrey Dahl of Hackensack, N. J., now Mrs. Audrey Christiansen of Teaneck, N. J.

Any Questions?

Question —

Please explain the difference in purpose and function of the following:

1. Society of Physical Medicine and Rehabilitation,
2. Council of Physical Medicine and Rehabilitation of the American Medical Association,
3. Congress of Physical Medicine and Rehabilitation.

— A Member

This inquiry was referred to the President of the Congress of Physical Medicine and Rehabilitation.

Answer —

1. *Society of Physical Medicine and Rehabilitation:* Is the national society of physicians specializing in Physical Medicine and Rehabilitation. Only qualified Board members are eligible for membership. The membership represents all physicians who head up Physical Medicine and Rehabilitation services in institutions or have educational or research responsibilities related to P.M. and R. This association will be assuming greater and greater responsibilities in the future. (Refer to President's Message on Membership, Archives of Physical Medicine and Rehabilitation, November 1953)
2. *American Congress of Physical Medicine and Rehabilitation of the American Medical Association:* A large group of physicians who by their membership exhibit interest in this field of practice. Many are potential specialists in the Physical Medicine and Rehabilitation field. The officers are inevitably also eligible to membership in the Society of Physical Medicine and Rehabilitation and attain such status by special education and practice of Physical Medicine and Rehabilitation.
3. *The Council of Physical Medicine and Rehabilitation of the American Medical Association:* Is one of the standing committees of the Board of Trustees of the A.M.A., composed of experts in the field which they represent. They are selected by the House of Delegates or Board of Trustees for services limited to two five-year terms. These persons plan the work of the Council in the line they represent, with established House of Delegates policy, and actively advise and assist the headquarters staff in carrying it out. The A.M.A. Councils are: Medical Education and Hospitals; Pharmacy; Chemistry; Foods and Nutrition; Physical Medicine and Rehabilitation; Industrial Health; Medical Service; National Emergency Medical Service; Scientific Assembly; Constitution and Bylaws; and the Judicial Council.

   The Council of Physical Medicine and Rehabilitation, like most of the others, has its own operational staff at headquarters, headed by a full-time secretary (at present Dr. Ralph E. De Forest). The membership of the Council on Physical Medicine and Rehabilitation consists of: 5 physiatrists, 2 orthopedists, 1 dermatologist, 2 physicists, 1 otolaryncholgist, 1 ophthalmologist, 1 pathologist; ex-officio — secretary and general manager of the A.M.A., assistant secretary of the A.M.A., and editor of the Journal of the A.M.A., plus Secretary of Council of Physical Medicine and Rehabilitation of the A.M.A., Associate Secretary of Council of Physical Medicine and Rehabilitation, Director of Biophysical Investigation of A.M.A., and Assistant Secretary of Council of Physical Medicine and Rehabilitation, Director of Physical Laboratory of A.M.A.

   Purpose of the Council: To check on such apparatus used in Medicine as: Electrotherapeutic Apparatus, Ophthalmological devices, respirators, Audion and hearing aids, electrocardiography apparatus, fertility and sterility devices, ionizing radiations, ultrasonics. Tests done in physical and biophysical laboratories of the A.M.A. and in institutions authorized by the Council. Has advisory committee on Health Resorts and advisory committee to Medical Education and Hospitals. (Refer to J.A.M.A., November 7, 1953.)

— WILLIAM BENHAM SNOW, M.D.

Chapter News

Florida Chapter

The Colonnades Hotel at Palm Beach Shores was the setting for the annual Florida Chapter meeting held in May. Following the executive and business meetings in the Grovener room, some members enjoyed "surf and sand" privileges of the hotel while others swam and sun bathed at the pool's edge. Cocktails in the Fantasy room were followed by dinner served in the patio dining room. After dinner, slides were shown demonstrating rehabilitation methods employed at the Palm Beach Crippled Children's Clinic where a tour of the clinic concluded the meeting.

Lt. Alma M. Roberts Receives Appointment

First Army Headquarters, Governors Island, New York, announces the appointment of a new Womens Medical Specialist Corps Procurement Officer. She is First Lt. Alma M. Roberts of Michigan City, Indiana.

Lt. Roberts succeeds Major Felie Clark who was well known throughout the First Army area from her visits to women's colleges, describing the advantages of careers in the Womens Medical Specialist Corps for college graduates and qualified students of physical therapy, occupational therapy and dietetics. Major Clark has been transferred to William Beaumont Army Hospital, El Paso, Texas.

Southwestern Poliomyelitis Respiratory Center Offers Polio Course

A three day and two evening course sponsored by Baylor University College of Medicine, Southwestern Poliomyelitis Respiratory Center, and Jefferson Davis Hospital in cooperation with The National Foundation for Infantile Paralysis, Inc., for physicians and ancillary personnel will include lectures, demonstrations concerning treatment of acute poliomyelitis, case conferences, and participation in patient management. Arrangements can be made for a selected number of nurses, medical social workers, and physical and occupational therapists to stay two weeks or one month for additional work in their particular areas of interest.

Aim

Medical care of the acute poliomyelitis patient with emphasis on the severely involved and the physician's responsibility in the effective coordination of ancillary services.

Procedure

A. Lectures covering: epidemiology, differential diagnosis, diagnostic methods, treatment, complications of severe illness including respiratory muscle paralysis, airway obstruction, pulmonary complications, and disorders of the nervous regulation of respiration and circulation.

B. Two evening case conferences to demonstrate the philosophy of treatment and total medical care in patient management.

C. Indications, use, and demonstration of respiratory equipment including the tank respirator, cuirass respirator, rocking bed, fluoroscope, spirometer, coughing devices, oxygen therapy, humidifiers, etc.

D. Small group participation in: medical work-up of the acute patient, ward rounds, fluoroscopy, practice with equipment, and muscle testing.

Address Inquiries To

William A. Spencer, M.D., Medical Director
Southwestern Poliomyelitis Respiratory Center, Jefferson Davis Hospital
1801 Buffalo Drive, Houston 3, Texas

Date

July 13, 14, and 15, 1954.

Number

Preference will be given to personnel who are or will be directly concerned with poliomyelitis patient management.

Financial Assistance

Physicians and nurses requesting financial assistance for this course may apply to their local chapter of The National Foundation for Infantile Paralysis, Inc. All medical social workers, physical and occupational therapists, and any physicians and nurses whose professional responsibility covers more than the local area should direct inquiries to the Division of Professional Education, The National Foundation for Infantile Paralysis, Inc., 120 Broadway, New York 5, New York.

1954 National Health Forum Furthers Joint Professional Attack on Personnel Problems

Cross-fertilizing anew the idea of an interdisciplinary approach to the adequate staffing of America's health services, health leaders at the 1954 National Health Forum, March 24 and 25, in New York City saw paradoxes in the problem, and sought means to resolving them.

The Forum, one of a series held each year in connection with the annual meetings of the National Health Council, was conducted by its 44 national organization members.

Council President A. W. Dent read to the Forum greetings from President Dwight D. Eisenhower which said in part: "Because the National Health Council typifies cooperation among the professions, the voluntary organizations, and the official agencies concerned with health, we have good cause for anticipating a significant contribution to the national welfare from the sessions."

Education of health workers must have a broad base and there is no substitute for individual participation. These two points were emphasized by both Dr. Detlev W. Bronk, president of the Rockefeller Institute for Medical Research and president of the National Academy of Sciences, who made the opening address, and Dr. Franklin D. Murphy, chancellor of the University of Kansas, who spoke at the dinner which closed the Forum.

(*Continued on page 368*)

Student Section

Help Yourself

In this section you will find articles ranging from prospective legislation to graduation, or even money making games (the poliomyelitis patients are the winners). You may read about the activities of physical therapy students from Richmond, Virginia to Dallas, Texas. Many of these things will sound familiar to you, and some, we hope, will be new. If you see an idea that interests you, accept it as a gift and put it to work all over again. We all benefit from such a process and in so doing, we are using the Student Section of the *Physical Therapy Review* for its intended purpose. We share knowledge and ideas while making friends and increasing understanding.

So help yourself!

ROY MOSMAN *

Why a Student Section?

Frances Davis *

As was mentioned in the introduction which heralded the coming of this section to the *Review*, we progress through sharing experiences. Our profession progresses through our active participation in its national organization while we are yet in the fledgling stages of our future work.

Through this section activities and projects can be described which may be of help and interest to other schools. The article on Open House at the University of Pennsylvania in the January issue and the school library article in the February *Review* bear witness to this fact. There are many suggestions in these accounts which could be used to advantage by other schools planning similar ventures in the future.

"Our" section can also serve in giving valuable experience in the art of professional writing. If we begin the mastery of this technic now while we are students, we will be more valuable members of our profession in the future.

Closely tied in with this is the fact that having a section of our own can lead to more active participation in all A.P.T.A. activities now and in the future. Now it makes us feel more a part of things. If participation becomes a habit now, it will come naturally in the future.

Here also we can voice our opinions, pleas, and commendations on matters which will affect us as future physical therapists. To summarize, the school section is designed to make today's students better therapists tomorrow.

* Aided by a scholarship from the National Foundation for Infantile Paralysis.

Duke Students Report

The Physical Therapy class at Duke University School of Medicine has undertaken two projects this year that have proven to be of educational value to the students as well as to the public.

The first project was to aid our faculty in promoting North Carolina Physical Therapy Week. An open house was held in the Physical Therapy department of Duke Hospital on Friday, February 26, 1954, and interested students were invited from Duke University, University of North Carolina, Women's College of University of North Carolina, Greensboro College, Meredith College, Peace Junior College, St. Mary's College, Wake Forest College, Elon College, and Guilford College.

The aim was to stimulate public interest and possible recruitment of students for the physical therapy profession. There were demonstrations of the methods of treatment employed in various diseases and disabilities and the presentation of selected patients of interest. Faculty members were available to answer any questions visiting students had concerning academic preparation and specific requirements for a career in physical therapy.

Since sixteen states and one foreign country were represented by our visitors, we feel that our open house has promoted physical therapy in more than just the Carolina area.

The second project was to construct a group of assistive devices aimed at aiding the paraplegic patient in every day living. Some of the articles were inexpensive copies of gadgets now commercially available, and several were original. The use of rubber suction cups proved to be a

popular method of stabilization. The utilization of coat hanger wire in such articles as cigarette holders, pick-up sticks, and splinting proved to be an economical and readily available source of foundation material. The gadget collection was placed on display at a recent Symposium on Spinal Cord Injuries held at Duke Hospital as well as at the gadget workshop held in conjunction with the annual meeting of the North Carolina American Physical Therapy Association.

We feel that assembling this collection has given us a valuable knowledge that can be applied in our future practice. Plans are being made to enlarge this present group of aids with the possibility of compiling a file or scrapbook for future use.

GERALDINE CREAGHE AND DUANE PEPIOT

March of Dimes Dance

Bruce T. Bobb

Are extracurricular activities at your school a rarity? I would imagine that they are. May we of the school of Physical Therapy at the Medical College of Virginia make a suggestion to you? Why not try to combine work with a little pleasure?

The National Foundation for Infantile Paralysis, as you know, furnishes many scholarships for physical therapy students and several of these students in preceding classes of M.C.V., deciding to try to show their appreciation and also let off some wrought up school tensions, planned a March of Dimes Dance to be held during January. Their example has been followed by succeeding classes including the class of '54.

Interest ran high among the members of the class as plans were put into action for the occasion. We soon discovered that, even with leisure time at a premium, the task was not too great. Close cooperation of all the committees and their members was the key to the eventual success. The local N.F.I.P. office was contacted and gave us complete cooperation. They supplied us with posters, contribution containers, and offered suggestions for fund raising.

Not overlooking the importance of such committees as refreshments, publicity, decorations, band and entertainment, the committee for "money making" was of the utmost importance for this was the primary purpose of the dance. It devised such schemes as a contest between the states for high contributions, fortune telling, auctions, paying for song requests, and many others. Although the crowd in attendance was not large, the spirit of giving ran high and a tidy sum was collected. The money was given to the Virginia Chapter of the N.F.I.P.

Above the fact of having made some small contribution to the March of Dimes, the feeling of accomplishment and pride was a most gratifying one. We who are planning to enter a profession so closely related to polio and its costs should be highly concerned with the support of the National Foundation for Infantile Paralysis.

If your school has not already put some similar type of activity into its program, it will indeed be worth the time and effort.

Joint Meetings of the Occupational Therapists and Physical Therapists of Virginia

Russell Cromwell *

We firmly believe that by sharing professional experiences with our co-workers, gaining a better understanding of each other's problems and procedures in giving treatments, patients with whom we work will receive much greater benefits than if each member of our team operates independently of the other. With this thought in mind, in 1949, joint meetings between Virginia chapters of Physical Therapy and Occupational Therapy became annual occasions.

The benefits derived from such a meeting are professional understanding, education, and sociability.

By professional understanding, we mean the gaining of some knowledge of each other's work to appreciate what the different departments are doing.

Educationally, the program is so arranged that a speaker or movie provides some educational flavor to the meeting which is of interest to both groups. This year's program consisted of the showing of two films: "The Functional Anatomy of the Hand," which was produced by the Department of Anatomy at Duke University, and "Teaching of Functional Activities," produced by the Physical Therapy Division of Stanford University.

An informal tea hour is held after each group has its individual business meeting, which allows for a discussion of many thoughts and ideas to be acted upon later.

These meetings are especially beneficial to students who participate as student members.

*Aided by a scholarship from the National Foundation for Infantile Paralysis.

They profit educationally and socially. The student has an opportunity to learn a few tricks from older active members which may do much to place him in a more profitable situation later by enabling him to do better work. This is the essence of joint meetings of Occupational Therapy and Physical Therapy. It is hoped that other chapters will be motivated to see if this can be profitable to them.

School Notes

"The oil burns late at the hospital gate" as the students at Hermann School of Physical Therapy are shooting at honors on graduation day in the fall.

The students attended the first joint workshop of Physical Therapists and Occupational Therapists of Texas, which was held at Arabia Temple Crippled Children's Clinic in Houston, Texas. The subject of the workshop was assistive devices and the students observed the construction of such objects as rubber foam scapula pads, opponens splints, and slings for the arms. Mrs. Virginia Edmondson assumed the role of a patient for a pool demonstration of various types of exercise equipment.

Houston

The Louisiana Chapter of the American Physical Therapy Association, under the guidance of its Legislative Chairman, Mr. Merton Miller, has been working for many months on a bill to regulate the practice of physical therapy in the state. From the progress already made, it is hoped that the bill will be introduced at the spring session of the Legislature and passed into law. The students of the School of Physical Therapy, of Charity Hospital, have decided to make a special project of helping this bill get passed by writing to all physical therapists in the state and asking that they in turn approach their respective State Representatives and request that they support the proposed bill.

KEN BARRILLEAUS
New Orleans.

From the University of Texas we received the following note: "Once a week we take time out to mix pleasure with business and a palatable mixture it is indeed. It is out Wednesday noon luncheon seminar held in conjunction with the occupational therapists, our close collaborators. These meetings are entirely informal. Faculty, physical and occupational therapists, students and O.T. affiliates take turns as hosts. The first meeting of the year is a "get acquainted" session and the last one belongs to the students. At the in-between ones, guest speakers in the fields of medicine, social sciences, and law lecture informally and discuss the problems of their specialties as related to physical and occupational therapy, doctor-therapist relations, legal problems as they pertain to the therapists, and other useful subjects. These seminars have the quality of being both entertaining and informative, and are a welcome break from classroom routine."

CHARLES FERGUSON
Galveston.

Scholarship Programs for Physical Therapy Students

We call your attention to a new pamphlet now available from the national office. It is called "Sources of Financial Assistance for Physical Therapy Students" and was compiled in response to an increasingly great demand for this kind of information on the part of prospective students, counsellors, and school directors. This pamphlet may be obtained upon request to the national office.

The information contained in this pamphlet will be revised and added to annually. Announcements of individual programs in the REVIEW will be made by special request only.

In line with this policy, we are pleased to announce that the Milwaukee Visiting Nurse Association is offering a $1,200 scholarship to an eligible young person interested in preparing for physical therapy and for work in the Visiting Nurse Association of Milwaukee. The applicant must give evidence of her interest in preparing for physical therapy in a public health agency, good health and ability to work with people. Preference will be given to a graduate nurse. The applicant will, upon satisfactory completion of her study, be given an appointment on the staff of the Visiting Nurse Association as a Junior Physical Therapist. She will be obligated to remain with the agency for two years, unless some unforeseen circumstances arise. If unable to fulfill her obligation, she may refund the funds granted. The scholarship is available starting the fall semester 1954, for one year.

For further inforamtion and application, write to:

Miss Ruth E. TeLinde, Executive Director
Milwaukee Visiting Nurse Association
1234 North Prospect Ave., Milwaukee, Wisc.

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Physical Therapy Programs—1954

APPROVED BY THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS OF THE AMERICAN MEDICAL ASSOCIATION

DEGREE and CERTIFICATE PROGRAMS—Information on specific entrance requirements should be obtained from the schools listed below. Schools offering a degree will accept high school graduates for the four year program leading to a baccalaureate degree, *as well as transfer students.* A certificate program is a concentrated course of study offered to those who have completed all or most of their undergraduate work before declaring a major in physical therapy. Graduates of either the degree or certificate programs are equally qualified.

	Degree Program	*Certificate Program*
California		
School of Physical Therapy Childrens Hospital Society (Univ. of California at Los Angeles) 4614 Sunset Boulevard Los Angeles 27	†	†
School of Physical Therapy College of Medical Evangelists White Memorial Hospital Boyle and Michigan Avenues Los Angeles 33	†	†
Department of Physical Therapy University of Southern California University Park Los Angeles 7	†	†
Curriculum in Physical Therapy School of Medicine University of California 3rd and Parnassus San Francisco 22	†	†
Division of Physical Therapy Stanford University Stanford	†	†
Colorado		
School of Physical Therapy School of Medicine University of Colorado 4200 East 9th Avenue Denver 7	†	†
Connecticut		
School of Physical Therapy University of Connecticut Box U 101 Storrs	†	
Illinois		
Course in Physical Therapy Northwestern University Medical School 303 East Chicago Avenue Chicago 11	†	†
Iowa		
Department of Physical Therapy State University of Iowa University Hospitals Iowa City		†
Kansas		
Section of Physical Therapy University of Kansas Medical Center 39th and Rainbow Boulevard Kansas City 3	†	†
Louisiana		
School of Physical Therapy Charity Hospital of Louisiana 1532 Tulane Avenue New Orleans 12		†
Massachusetts		
Department of Physical Therapy Boston University Sargent College of Physical Education 6 Everett Street Cambridge 38	†	†
*Course in Physical Therapy Bouve-Boston School Tufts College Medford 55	†	
*Program in Physical Therapy Simmons College The Fenway Boston	†	†
Michigan		
Curriculum in Physical Therapy University of Michigan 1313 East Ann Street Ann Arbor	†	†

*Accepts women students only.

	Degree Program	Certificate Program
Minnesota		
School of Physical Therapy Mayo Clinic 102-110 Second Avenue, S.W. Rochester		†
Course in Physical Therapy University Hospital, 204-TWH University of Minnesota Minneapolis 14	†	
Missouri		
Division of Health and Hospital Services St. Louis University 1325 South Grand Boulevard St. Louis 4	†	
Department of Physical Therapy School of Medicine Washington University 660 South Kingshighway St. Louis 10	†	
New York		
*School of Physical Therapy Albany Hospital (Russell Sage College) New Scotland Avenue Albany 8	†	†
Courses for Physical Therapists Columbia University College of Physicians and Surgeons 630 West 168th Street New York 32	†	†
Physical Therapy Division School of Education, New York University Washington Square East New York 3	†	†
Program in Physical Therapy University of Buffalo 2183 Main Street Buffalo 14	†	†
North Carolina		
Physical Therapy Course School of Medicine Duke University Durham		†
Ohio		
Course in Physical Therapy Frank E. Bunts Ed. Inst. Cleveland Clinic Hospital 2020 East 93rd Street Cleveland 6		†
Pennsylvania		
Division of Physical Therapy School of Auxiliary Medical Services University of Pennsylvania 1818 Lombard Street Philadelphia 46	†	†
Division of Physical Therapy The D. T. Watson School of Physiatrics (In affiliation with the University of Pittsburgh) Sunny Hill Leetsdale	†	†
Texas		
Grady Vaughn School of Physical Therapy Baylor University University Hospital Dallas	†	†
Hermann School of Physical Therapy Hermann Hospital 1203 Ross Sterling Avenue Houston 5		†
Division of Physical Therapy University of Texas School of Medicine Galveston	†	†
Virginia		
School of Physical Therapy Baruch Center of Physical Medicine and Rehabilitation Medical College of Virginia 1203 East Broad Street Richmond 19	†	†
Wisconsin		
Course in Physical Therapy Medical School, University of Wisconsin Madison 6	†	†
U. S. Army Medical Service		
*Physical Therapy Course Medical Field Service School Brooke Army Medical Center, Fort Sam Houston, Texas and Brooke, Letterman and Walter Reed Army Hospitals Write to: The Surgeon General Department of the Army Washington 25, D. C. Att: Personnel Division		†

*Accepts women students only.

Please direct all inquiries regarding tuition, entrance requirements and other specific information to the school and *not* to the American Physical Therapy Association.

Abstracts

Spinal Cord Compression Studies. II. Time Limits for Recovery After Acute Compression in Dogs

I. M. Tarlov and H. Klinger, ARCH. NEUROL. & PSYCHIAT., 71:271-290, March 1954.

Functional recovery after acute extradural compression of the spinal cord in dogs depends upon the magnitude of the compressive force, as well as on its duration.

With large compressive forces, full recovery of function occurred when the compression was released in one minute. When such compression was applied for longer periods, functional recovery did not usually occur. The cause of these irreversible changes is destruction of the spinal cord at the compression site.

When minimal spinal compressive force is used to produce paralysis of the hindlimbs and complete sensory loss, recovery occurs with periods of compression up to two hours. When a compressive force of iatermediate grade is used, the critical period is 30 minutes, beyond which there is no return of function.

Compression of the cauda equina by large balloons for as long as five hours is compatible with full functional recovery after its release. Failure of recovery to occur within this period, and probably after longer periods of compression, is due to hemorrhage within the conus medullaris, which diffuses upward to destroy the adjacent segment or two of the spinal cord innervating the hindlimbs.

Although functional recovery may begin as early as 1 to 5 days after spinal cord or cauda equina compression, it may be delayed as long as 30 days after spinal cord compression and 59 days after cauda equina compression in dogs in which full return of function follows.

A comparison of the effects of ischemia with those of spinal compression in animals shows that mechanical deformation, rather than anoxia, is the main factor in producing compression paralysis.

Pain sensation persists after motor function of the hindlimbs is lost after compression of the spinal cord and cauda equina, and during the recovery phase it returns before motor power and position sense.

The duration of spinal cord compression compatible with recovery is much longer in animals—up to one week and more—which show complete loss of motor function but preserved pain sensation.

The less the degree of sensorimotor paralysis after acute compression, the more quickly does recovery ensue.

Etiology of Antisocial Behavior in Delinquents and Psychopaths

A. M. Johnson and S. A. Szurek, J.A.M.A. 154: 10:814-817, March 6, 1954.

Unwitting sanction or encouragement by the parent of unacceptable behavior in the child is the precedent for adult psychopaths. A child involved in a particular type of antisocial behavior may offer the parent or parents an unconscious gratification of their own poorly inhibited impulses, and thus they repeatedly condone the delinquent behavior.

In a family one child is often chosen as the scapegoat and it is toward this child that the parent aims his hostile destructiveness. The choice of a scapegoat may come because of an unfortuitous resemblance to a "ne'er-do-well" member of the family; or in an adopted child, the misbehavior in these cases is attributed to heredity. The significance of the child studied can often be discovered by a thorough study of the parents.

The family presents a complex setting into which many facets of both good and bad behavior patterns enter in the rearing of the child. However, the specific stimulus for the actual living out of a child's antisocial behavior is generally in the sphere of the unconscious. Fire-setting, truancy, stealing, unacceptable sexuality, vandalism and more serious recurring criminal behavior may be traceable to a lack of integration and defect of conscience in the parent.

Evidence for this type of parent-child interaction must be sought by spontaneous psychotherapy for both parties involved. The treatment of the parent is impossible if the parental role was a conscious sanction of the child's delinquency. Treatment aimed at the defects in the unconscious may result in neuroses, phobias and compulsions but these are preferable to antisocial behavior with its threat of perpetuation through generations.

Hearing and Language Evaluation with Hard of Hearing Children

John A. Irwin and Anne R. Shreve, ARCH. OTOLARYNG., 59:186-191, February 1954.

Four children who were members of a preschool training program for hard of hearing children were studied in areas of their language ability and adjustment to a wearable hearing aid in relation to the training program. Each child was given periodic hearing testing, psychological testing as an objective measure of language, and subjective language evaluation. The results were as follows:

1. Three children showed significant gain in hearing function with a wearable hearing aid.
2. Each child seemed to show gain with the hearing aid after one month of wear.
3. The psychological testing revealed that there were significant gains in the areas of memory for sentences, picture vocabulary, digit span forward, and number concepts with the children following training.
4. The children generally showed some observable changes in language behavior with respect to use of pronouns, adjectives, adverbs, length of sentences, comprehension of "why," "when," and "how," and understanding of verbal directions.
5. There was no decrease in lip reading abiliy wtith the fitting of a wearable hearing aid.

Motor Abilities of Mentally Retarded Youth

Donald A. Turnquist and Stanley S. Marzolf, J. HEALTH & PHYS. EDUC., 25:43-44, March 1954.

Differences between the two groups (11 children having average intelligence and 11 with a mean I.Q. of 69) statistically significant at the 5 per cent level or better were found on 25 of the 65 Oseretsky items. For 20 of these items, the group having average intelligence did better, while for the remaining five items the advantage was with the mentally retarded. The most clear-cut differences between the two groups are to be found on those test items classified as Synkinesia, Simultaneous Movement, and General Static (balance). In no category do the mentally retarded have a distinct advantage, but the two groups seem to

differ least in the Dynamic Manual, General Dynamic, and Speed items.

Though this study is based on a limited sample, the results suggest that the mentally retarded do have deficiencies in motor ability when compared with those of average intelligence. Should these findings be verified by further studies, evidence suggesting the need for a modified physical education program for the mentally retarded would be at hand.

Studies Utilizing the Portable Electromagnetic Ballistocardiograph. V. The Importance of the Light Exercice Test in Clinical Ballistocardiography.

Harry Mandelbaum and Robert A. Mandelbaum, CIRCULATION, IX:388-399, March, 1954.

The normal heart and the hypertrophied heart adjust to the stress of exercise by an increase in the cardiac output. This is accomplished by an improvement in the work capacity per unit of ventricular tissue and by an increase in coronary blood flow.

The dilatory response of the coronary circulation to increased metabolic needs is impaired in proportion to the extent of organic coronary artery disease. In heart failure, the overstretched fibers cannot respond to the demands of extra work; the force of the contraction is reduced; the cardiac output decreases, and an increase in the end diastolic pressure of the pulmonary arterial tree results.

The ballistocardiograph records the vigor of cardiac ejection and the speed of diastolic filling. It provides a simple means for the study of the physiologic response of the stress of exercise. In the presence of heart failure, not only does the exercise ballistocardiogram fail to show amplitude improvement, but deterioration of the systolic complexes with accentuation of the diastolic waves result. This is reversed by digitalis. Where extensive myocardial scarring interferes with the metabolic efficiency per unit of ventricular tissue or where the dilatory response of the coronary circulation to stress is impaired by appreciable organic disease, exercise produces worsening of the ballistocardiogram. These findings are not influenced by digitalis. A satisfactory ballistocardiographic response to exercise, as judged by normal configuration and increased amplitude of complexes, suggests an adequate myocardial function capability.

The application of the light exercise test has proved of inestimable clinical value in this study. We feel that its inclusion in all routine ballistocardiographic examinations is essential.

Studies on the Effect of Exercise on Cardiovascular Function. III. Cardiovascular Response to Exercise in Patients with Healed Myocardial Infarction.

Carleton B. Chapman and Robert S. Fraser, CIRCULATION, IX:347-351, March, 1954.

Patients with healed myocardial infarction, but who are asymptomatic, are able for the most part, to complete an exercise test involving moderate physical exertion lasting for a minimum of 10 minutes.

The response of the cardiac output, mean circulation, time and blood pressure to such an exercise stress is substantially the same, quantitatively and qualitatively, as the response in comparable normal individuals.

The relatively marked increase in pulse rate in such patients during the exercise test is probably a manifestation of prolonged physical inactivity rather than of permanent cardiovascular disability.

The exercise test as used in the present studies provides no support for the view that marked restriction of activity is physiologically necessary in patients of this type.

The Effects of Continuous Infusions into the Brachial Artery of Adenosine Triphosphate, Histamine and Acetylcholine on the Amount and Rate of Blood Debt Repayment Following Rhythmic Exercise of the Forearm Muscles.

G. C. Patterson and J. T. Shepherd, CLIN. SC., 13:85-91, February, 1954.

The experiments were devised to see whether the infusion of vasodilator substances, which might be expected to increase the amount of metabolically available blood passing through the muscle during and after activity would affect the debt repaid or its rate of repayment.

The blood flow through the forearm was measured before and after standard rhythmic exercise of the forearm muscles.

Infusions into the brachial artery of magnesium adenosine triphosphate, histamine acetylcholine (before, during and after the exercise) at a rate more than sufficient to double the resting flow through the forearm, has no effect on the amount and rate of debt repayment; although, it is likely that these substances increase the amount of metabolically available blood passing through the muscles.

The implication of these findings is discussed.

Control of Urinary Incontinence in Patients with Multiple Sclerosis

S. R. Muellner, J.A.M.A. 154; 12: 975-977, March 20, 1954.

It has been reported that one-third of all patients with multiple sclerosis have concomitant urinary symptoms. These consist of nocturia, frequency, urgency, incontinence, and enuresis. Past treatment was centered about the use of drugs which influenced the central nervous system lesion but which were ineffective in bladder control. Analysis of the pathological physiology of the bladder in multiple sclerosis has turned the pattern of control to a management of the patient's pattern of living and the condition and behavior of his bladder.

Normal micturation is a coordinated function involving the abdominal musculature, thoracic diaphragm and levator ani. The latter and the pubococcygeus are needed to stop micturation and to inhibit the contracting detrusor (longitudinal bladder muscles).

In multiple sclerosis the patient is as likely to be awkward in control of the levator ani and detrusor muscles as he is in controlling the leg muscles. Even minor stimuli may set off an unwarranted response resulting in partial or complete contraction of the bladder. The commonest stimuli resulting in these unwanted detrusor contractions are sudden increases in intra-abdominal pressures, such as may come from rising from a recumbent or sitting posture. Then, as the patient is unable to contract the levator ani quickly, he cannot inhibit the detrusion action.

The hyperirritability of the neurogenic bladder of multiple sclerosis

may be lowered or completely eliminated for varying lengths of time by the judicial use of anticholinergic drugs. Dosage schedule must be adjusted with exacerbations and remissions according to the progress of the disease.

The Work of Breathing in Normal Subjects.

M. B. McILROY, R. MARSHALL and R. V. CHRISTIE, Clin.Sci., 13:127-136, February 1954.

The work required to ventilate the lungs was measured from simultaneous records of intra-oesophageal pressure and tidal volume in normal subjects at rest and on exercise. The work of breathing at rest is about 0.3 kg.m./min. and the maximum possible work is approximately 80 kg.m./min.

On exercise, the work of ventilating the lungs increases linearly with the increase of minute volume. The rigidity of the lungs and the resistance to air flow decrease on exercise.

The existence of an optimal rate of respiration at which a given alveolar ventilation is maintained with a minimal expenditure of work has been shown directly both at rest and on exercise. Normal subjects at rest and on exercise breathe at the rate and depth which is most economical in terms of respiratory work. The regulating mechanism which brings about this control is not yet elucidated.

The Lumbar Intervertebral Disk Problem

O. W. JONES, Indust.Med. & Surg., 23:112-115, March 1954.

The problem of low back pain with or without pain in the lower extremities requires further investigation. Dislocation of a nucleus pulposus produces a definite clinical syndrome. A wide variety of conditions may simulate the disk syndrome.

To date, in the presence of a true dislocation nucleus pulposus there is insufficient evidence to indicate that the results are any better with the combined procedure.

In the presence of spondyloschisis, spondylolisthesis or a degenerated intervertebral disk the combined procedure is indicated.

Spinal fusion should be employed as a second operative procedure if disabling back symptoms persist following disk removal.

Extended conservative therapy in the presence of a dislocated nucleus pulposus is inimical to the patient's welfare. Pain patterns become fixed, permanent nerve changes appear, and because of prolonged disability morale is lowered, mental and physical rehabilitation are slow.

Any patient whose symptoms outlive a month's conservative treatment is entitled to myelographic examination.

The operative results in the industrial patient compared with the private patient are uniformly poorer. This would seem to indicate that all industrial cases should be settled prior to operation, should the latter be necessary.

Birth Injuries: A Follow-up Examination

Odd Morstad, ACTA OBST. ET GYNEC. SCANDINAV., XXXIII, Supp. 1, 1953.

The general problem of birth injury is briefly discussed. It is stressed that birth trauma should be considered from a physiological, rather than from a pathologico-anatomical point of view.

Some of the more important publications on the subject are reviewed.

The present study originates from the University Maternity Hospital of Oslo. A considerable proportion of the patients were admitted for imminent or evident birth complications. For this reason the present series does not represent "normal material," which is shown by the fact that the average infant mortality, as well as the maternal mortality is definitely higher here than in the country as a whole.

The present study covers the twenty-year period from 1930 to 1949 inclusive (44,533 deliveries). Some of the facts thus obtained are: total number of infant deaths, 5.17 percent; total number of children discharged alive with evidence of transient or permanent birth injury, 5.08 per cent; total number of birth injuries in surviving and nonsurviving infants, 7.35 per cent.

For the purpose of elucidating purely obstetrical problems a group of cases of asphyxia and a group of cases of cerebral hemorrhage were selected. Both groups showed, as the most striking feature, an exceptionally high incidence of premature births (about 28 per cent in the cerebral hemorrhage group) and of elderly primiparas (about 60 per cent in both groups). The problem of premature birth involves many unknown factors. The elderly primiparas represent a definite obstetrical problem, but the "prophylaxis" with regard to this cause of birth complication is largely a social one. An expectant, and not too active, attitude on the part of the obstetrician seems natural in most of these cases.

Follow-up examinations were done either by questionnaires or through clinical control and the results are summarized.

It is pointed out that all infants showing evidence of cerebral injury, even slight, should be treated as suffering from cerebral hemorrhage. Furthermore, it is recommended that these infants be segregated in a separate ward under the permanent care of a trained, specialized staff.

Vertebral Fractures as a Complication of Electroconvulsive Therapy

P. A. Dewald, N. M. Margolis, H. Weiner, J.A.M.A 154:12 (981-984) March 20, 1954.

Two hundred eighty-five cases of electroconvulsive shock therapy were studied by means of roentgenograms before and after shock to study the incidence of vertebral fractures.

It was found that the incidence was much higher in men (42.9 per cent) than in women (13.9 per cent) with an all over incidence of 20.8 per cent. The fifth, fourth and sixth dorsal vertebrae respectively, were the most commonly involved. The majority of fractures occurred early in the course of treatments. The only physical factor that was found to definitely predispose vertebral fracture was osteoporosis. Age, spondylosis or kyphosis did not have any relation to the incidence of fracture.

The hypothesis is put forth that the immediate etiology of the fracture is a violent muscular contraction of a strong muscle mass. This might explain the higher incidence in males. Certain modifications in positioning of the patient during electroconvulsive shock are suggested as well as the use of muscle relaxant drugs to decrease the incidence of postconvulsive fracture.

The Etiology of Essential Hypertension. I. The Arterial Pressure in the General Population.

M. Hamilton, G. W. Pickering, J. A. Fraser Roberts and G. S. C. Sowry, CLIN. SC., 13:11-35, February 1954.

The casual arterial pressure has been measured in a sample of the general population, including ages from the second decade upwards. This sample comprised all subjects attending, on certain days, the outpatient clinics for varicose veins, diseases of the skin, orthopedics, fractures, and dental treatment.

Average arterial pressures rise with age. For systolic pressure the growth curve is curvilinear, but for diastolic pressure there is no significant deviation from linearity.

The curves relating average systolic and diastolic pressures to age differ in the two sexes.

Testing the population sample for homogeneity showed only one significant difference between its three constituent groups, namely, the more rapid rise of systolic pressure with age in females suffering from varicose veins.

Our figures closely resemble those of previous workers, except when their subjects have been selected in such a way as to bias against so-called hypertension.

Histograms suggest that there is probably considerable individual variability in the rate of rise of arterial pressure with age.

There is no natural dividing line between those with high pressure and those without. In every decade the series is continuous, and any division must be purely arbitrary.

It is suggested that what is termed essential hypertension represents not a disease entity, but merely that section of the population presenting arterial pressures higher than an arbitrarily selected value, and having no disease to which these pressures can be attributed.

The Function of Group Play During Middle Childhood in Developing the Ego Complex

Eve Lewis, BRIT. J. M. PSYCHOL., XXVII, (Parts 1 & 2):15-29, 1954.

The most important finding appears to be that the period of middle childhood is one of great psychic growth. The child has profound psychic experiences behind the facade of his largely extroverted activities.

The gang organization is of fundamental importance to the child at this stage of development. It helps him to separate from the mother; to establish his best attitude and function; to enrich and integrate the ego by profound experience of inner and outer reality.

When, in the natural course of development, a major modification of consciousness must be made, the 'self' of the gang is the 'life' of the child, uniting consciousness and the unconscious in creative play experience.

How To Teach Students To Write Clearly in Courses Other Than English

Marvin J. Barloon, J. MED. EDUC. 29: 3:30-34, March, 1954.

A method is presented designed to aid the teacher in guiding the student to a better organization of his written work. The process of clear writing compels the making of precisely modified evaluations and the construction of balanced relationships.

The following principles have been formulated which are applicable to any field requiring language as a major medium of communication.

"1) Teach the elements of a performance individually before teaching the whole performance.
2) Show the student what you are trying to teach him to do before expecting him to do it.
3) When a student does something wrong show him precisely what he did wrong, and make sure he understands the criticism before asking him to correct it.
4) A student has not learned how to do something until he has done it by himself without interference or guidance from the instructor."

In the classroom situation, the author presents the didactic material about which the students are required to write short paragraphs using topic sentences, sentences of modification, evidence and supportive reasoning. These paragraphs are corrected and constructively criticized. In subsequent lessons the papers become longer and the criticism more severe.

In the final analysis any paper which is turned in and not perfectly organized should not be read but turned back to the student for rewriting. Ninety percent of the students subjected to this teaching approach improved in both organization and construction of written work. The system presents to the student a review and systematic drill of what he has previously learned in English composition as well as an opportunity to apply it to material in his specialized field.

Attempt at an Ontogenetic, Histological and Histopathological Synthesis of the Functions of the Ovary and of the Rest of the Reproductive System.

HANNES SAURAMO, Acta obst. et gynec.Scandinav., XXXIII, Suppl. 2, 1954.

This comprehensive work is concerned with oogenesis in the human female, the continued formation of ova, puberty, follicle system, measurements of ova, ovariogenesis, and ovarian tissues. The homologous tissues of the ovary and the testis are also dealt with briefly. The variations in ovarian function according to age are described and the menarche and menopause, especially, are compared. Hormone activity and the histological picture of the ovary are discussed and a scheme showing their correlation is presented.

Transformation phenomena in the ovarian tissues are described, and also simultaneous transformation phenomena in the ovary and uterus. The origin of uterine myoma and multicentric reaction have received attention. An account of the histogenesis of ovarian tumours follows, with a table of classification. Finally there is a list of problems requiring additional studies.

Arthroplasty of the Hip with Removal of the Lesser Trochanter

James J. Callahan, POSTGRADUATE MEDICINE, 15:3:230-237, March 1954

Relief of pain and increased function of the hip joint are two major criteria in measuring the success or failure of hip arthroplasty. Many failures after surgery have been due to the proximity of the lesser trochanter to the inferior edge of the acetabulum, a condition causing

pain. Roentgenograms taken in the erect weight bearing position will reveal the defect.

Dr. Callahan proposes here that the lesser trochanter should be removed during surgery, a procedure which gives good anatomical and functional results in a normal articulation without the use of any prosthesis. Providing careful medical evaluation is obtained, this procedure is recommended for any age group. If the procedure should prove unsuccessful in any case, prosthetic devices can be resorted to at a later date.

Early physical therapy and weight bearing are essential to the success of the operation so patients with good motivation should be selected. Pathologic processes in the opposite hip must be recognized and the patient informed of their significance.

After surgery, no attempt is made to correct the shortening. Elevation later not only helps to overcome any Trendelenburg appearance but also aids in the deposition of new fibrocartilage. Early surgery is encouraged in cases of nonunion to overcome the added complications which follow long periods of immobility.

Book Reviews . . . . .

Introduction to Physiological and Pathological Chemistry. *By L. Earle Arnow, Ph.G., Ph.D., M.B., M.D., Bryn Mawr College Summer School of Nursing, Bryn Mawr, Pa., 1941-1943; formerly Assistant Professor of Physiological Chemistry, University of Minnesota Medical School; Director of Research, Sharp & Dohme Division, Merck & Co., Inc.; Professor of Chemistry. Cloth; price $3.75. Pp. 508, illus. 108; C. V. Mosby Co., St. Louis, 1953.*

This is the fourth edition of this textbook by Dr. Arnow and several important changes have been made. Some of the suggestions came from Miss Marie C. D'Andrea who is Educational Director of the School of Nursing at St. Vincent's Hospital in Indianapolis and knows the problems of teaching chemistry to nurses.

It is difficult to decide just how much fundamental chemistry should be included in a textbook used primarily in a nursing curriculum, but Dr. Arnow has been able to give a complete introduction to the general concepts of chemistry without getting too theoretical or using too much space. A new chapter on Nuclear Chemistry and Atomic Energy has been included to give background material necessary to understand modern warfare and its affect on disaster nursing and the uses of radioactive isotopes in medicine. A second new chapter gives a description of the periodic table and discusses some of the more important elements.

The section on physiological and pathological chemistry is very well written with special attention given to definitions of each new subject introduced. The author has included all the material suggested by the Committee on Curriculum of the National League of Nursing Education and, where practical, discusses the application of chemistry to the treatment of disease. A special chapter on the chemistry of blood has been added. Study questions and illustrations are included to aid the student.

Previous editions had a third section on laboratory experiments. These are now published as a separate manual.

This textbook is highly recommended for all students of nursing.

Introduction to Laboratory Chemistry. *By L. Earle Arnow, Ph.G., Ph.D., M.B., M.D., Bryn Mawr College Summer School of Nursing, Bryn Mawr, Pa., 1941-1943; formerly Assistant Professor of Physiological Chemistry, University of Minnesota Medical School; Director of Research, Sharp & Dohme Division, Merck & Co., Inc.; Professor of Chemistry. Cloth; price $1.50. Pp. 108, illus. 37, C. V. Mosby Co., St. Louis, 1953.*

This laboratory manual was originally a section of the textbook, *Introduction to Physiological and Pathological Chemistry*, by Dr. Arnow. As a separate manual it is more useful. An instructor can check the laboratory assignments without depriving a student of his textbook.

This manual consists of 144 experiments, the majority of which are chemical tests. They are helpful in giving a student concrete evidence of the chemical nature of such substances as enzymes, proteins, vitamins and hormones. None are time-consuming or require elaborate apparatus and can be performed easily by inexperienced students.

The manual follows the textbook in its order of presentation of subjects and the two used together make it easy to correlate the lectures with the experiments However, this manual could be used satisfactorily with other introductory biochemistry textbooks.

Group Work with the Aged. *By Susan H. Kubie, formerly in charge of Social Service Department, Sheppard and Enoch Pratt Hospital, Baltimore, Md., now connected with the William Hodson Community Center, a day center for older people; and Gertrude Landau, formerly staff representative on the Mayor's Committee on Problems of the Aging; now executive director of the W.H.C.C., Supervisor of field work of students for schools of social work. Cloth; price, $3.50, Pp. 214, International Universities Press, Inc., New York, 1953.*

A detailed description and analysis of the development and growth of a community center for the aged. The authors, both trained social workers and staff members at the William Hodson Community Center have helped to develop this program since its inception nine years ago. When this program started, a recreation center for the aged was an innovation. The authors point out objectively the trials, and at times errors, that went into the development of a program.

The authors explain that our preconceived ideas of age blind our observations so that the motivations and reactions of the aged are overlooked. We are accustomed to see the general conspicuous traits of older persons without realizing that these traits are defense reactions against the losses suffered with age-loss of job, retirement, loss of family ties, diminishing physical energy and even physical handicaps. We understand the reactions of children because we have experienced their reactions. The authors found that in working with the aged, they must answer the questions for us as to the resources and the ability of a person to adjust to the losses incurred in total or in part during the later years.

A community center cannot duplicate normal community life but,

when this is deprived, a center has the burden of recreating some measure of the fullness of life to its clients. Affection and security must be presented along with a feeling of usefullness and a purpose in life.

When the center started, the first members of the club along with the workers generally readjusted and developed together. Gradually the community changed from the initial insecurity and extreme dependence upon the staff, to an independence and growth of community control. While the individuals always maintained their own integrity, the majority gradually lost the traits that made them unhappy, unaccepted and unaccepting to their fellows. Initially, rarely did any of them realize that their individual situations had any universal factors. Personal case histories to illustrate these various points are presented with sympathy and understanding.

The aged could not be pushed into anything. Early beginnings went slowly. It took time and patience to develop gradually an understanding of self government, of programming, of active participation rather than passive acceptance or stubborn refusal. The development of such programs in wood-working, dramatics, music, and parties are gone into in detail. Each new undertaking always has involved the creation of group feeling among the participants, and of being sure that they understood what they were preparing to undertake and the purpose of the undertaking.

The experiences in the development and growth of this center will undoubtedly be the experience in the development of similar centers. Since this movement is spreading rapidly throughout the country, this book is an excellent text book and reference in establishing such programs. The authors have so thoroughly and logically pointed out the numerous problems that the aged themselves answered, as to make this an excellent reference for everyone who is interested in our senior citizens, whether a center program is contemplated or not.

Rehabilitation Monograph V: Braces, Crutches and Wheelchairs — Mode of Management, *By George G. Deaver, M.D., and Anthony L. Brittis, M.D. Members of the staff of the Department of Physical Medicine and Rehabilitation, New York University College of Medicine; under the editorship of Howard A. Rusk, M.D., and Eugene J. Taylor, M.A. Paper: price $1.00. Pp. 61; illus. 35. Institute of Physical Medicine and Rehabilitation, New York, 1953.*

This excellent monograph contains a wealth of practical information of value to the physical therapist and to the physical therapy student. The photographic illustrations are very good. The section on braces and principles of bracing answers a real need for some succinctly stated material on the subject. The monograph is written in a semioutline form making it easy to read and good as reference material. The table of contents is completely indexed increasing the value of the monograph for reference.

The descriptions of type of braces and special attachments are correlated to a certain extent with indications. Construction, fitting, alignment, accessories, and follow-up care are discussed.

The sections on crutches, crutch gaits, and wheelchairs cover data, some of which is available in more detail in other printed sources. It seems practical to have material on crutches, wheelchairs, and bracing incorporated into one publication of this sort.

The reviews here published have been prepared by competent authorities and do not represent the opinions of the American Physical Therapy Association.

1954 National Health Forum

(Continued from page 356)

Groups Point Up Paradoxes

Again and again the nearly eighty speakers and panel members who led five simultaneous group discussions — facing the fact of tremendous and continuing growth in scientific knowledge — recognized the inevitability of a related increase in specialization, but stressed the consequent dire necessity for more effort to assure a "wholistic" approach to the recipient of health care.

Teamwork, they said, among many professions and skills and the community at large is required to give a single human being the benefit of all the health knowledge we now have.

The corollary in education, Forum participants pointed out, is that specialization must build upon a broad base of general education — each discipline must understand what the others offer, and grasp the philosophy and master the technics of cooperation and interaction.

Teamwork, involving the use of lesser skilled assistants by all professions, is one hopeful means to meeting health personnel shortages. Yet a rapidly growing population (206,000,000 by 1975 was an estimate cited); increasing public demands for care based on wider knowledge; and the new abilities required to put our complex new knowledge to work for humanity, together point to stepped-up recruitment of young people into health services. Moreover, it was seen that the various health professions must work together to distribute wisely and channel into some health field all the available abilities and all the interest that is aroused.

Classified WANT-ADS

WANTED: QUALIFIED PHYSICAL THERAPISTS, 500-bed, modern, general chronic disease hospital. Salary dependent on experience; liberal vacation and sick leave benefits. Lunches provided. Apply Superintendent, St. Barnabas Hospital, New York 57, N. Y.

PHYSICAL THERAPIST NEEDED for outpatient clinic in well equipped rehabilitation center. Excellent working conditions. Write Dr. Alvin R. Carpenter, Medical Director, Rehabilitation Services, 200 Court Street, Binghampton, New York.

WANTED: PHYSICAL THERAPIST. Wonderful community backing. Excellent facilities. Have orthopedic teacher and occupational therapist. Good pay. Apply Foss Elwyn, Supt. Public Schools, Sault Ste. Marie, Mich.

POSITION AVAILABLE for Physical Therapy Consultant with official State Crippled Children's Agency, treating children with orthopedic conditions in outpatient clinics, treatment centers, and in the homes. Must be qualified physical therapist with at least one year's experience. Sick leave benefits, vacation with pay. Apply: Division of Crippled Children's Services, State Department of Public Assistance, Capitol Building, Charleston, West Virginia.

WANTED FOR SUMMER: Qualified physical therapist by Visiting Nurse Association. Direct replies to Ruth E. TeLinde, Executive Director, V.N.A., 1234 North Prospect Avenue, Milwaukee, Wisconsin.

WANTED: QUALIFIED physical therapist (male or female) for 125-bed children's orthopedic hospital. Polio center for acute and convalescent care; rehabilitation cases of all age levels; P.O. orthopedic and a very few C.P. patients. Affiliate student training with Columbia University. Daylight ground floor department with pools and excellent equipment. Good starting salary, merit raises, 40-hour week, maintenance optional, 12-day sick leave, 2-weeks' vacation, Social Security, and insurance. Write Mr. George I. Mattix, Administrator, Morris Memorial Hospital, Milton, West Virginia.

WANTED: STAFF PHYSICAL THERAPIST (male or female) to work in growing midwestern hospital, expanding to 340 beds. Enlarged, remodeled department in building plans. Both in- and outpatients; 40-hour week. Free Blue Cross, good life insurance plan. Salary open. Write Chief Physical Therapist, Trumbull Memorial Hospital, Warren, Ohio.

WANTED: QUALIFIED physical therapist, woman preferred, for work in department operated by a midwest medical group. Position open immediately. Address replies to Box 12, care of the Physical Therapy Review, 1790 Broadway, New York 19, N. Y.

QUALIFIED PHYSICAL THERAPIST (male or female). Either experienced or inexperienced therapist. Rapidly growing Rehabilitation Center, good opportunity for promotion. Salary schedule designed to attract the best. Five-day week, Monday through Friday, 8:30 a.m. to 4:30 p.m. Holidays off, paid vacation and sick leave. Social Security, Workmen's Compensation, Blue Cross and Blue Shield. Contact Roy E. Patton, Executive Director, Crossroads Rehabilitation Center, 3001 North New Jersey Street, Indianapolis 5, Indiana.

FOR OPENINGS in physical therapy in the State of Virginia, contact: Mr. Ivan C. Kline, Placement Service Chairman, Va. P. T. Assoc., Inc., 3822 Maury Street, Richmond 24, Virginia.

OPENING IN CEREBRAL PALSY school and treatment center in new building. Very good salary and liberal personnel policies. Experience in cerebral palsy desirable. Write: Mrs. D. M. Brown, 804 Dover Road, Greensboro, N. C.

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